# APPENDIX B

# RADIATION DATA DEFINITIONS AND COMPILATION FOR EQUIPMENT QUALIFICATION DATA BANK

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## Table B-1

#### DEFINITIONS FOR EQUIPMENT QUALIFICATION DATA BANK

#### PARTICLES

B = Beta rays

E = Electrons

G = Gamma rays

N = Neutrons

P = Protons

#### PHYSICAL PROPERTIES

AB = Absorptivity

CL = Color

OC = Optical change

OG = Outgassing

SW = Swelling

TC = Thermal conductivity

VS = Viscosity

WC = Weight change

#### ELECTRICAL PROPERTIES

BV = Breakdown voltage

DE = Dielectric strength

EC = Electrical conductivity

## DOSE DEFINITIONS

LTD = Lowest threshold dose

LTDR = Dose rate corresponding to LTD above

25CD = Dose for a 25% change in specified material property

25CDR = Dose rate corresponding to the 25% data above

\_CD = Dose for a % change in specified material property

\_CDR = Dose rate corresponding to the \_\_ % change in the material property above

#### MECHANICAL PROPERTIES

CS = Compression set, or permanent set

DC = Ductility

EL = Elongation

EM = Elastic modulus

FS = Flexure Strength

HD = Hardness

IS = Impact strength

SB = Set at break

SS = Shear strength

TS = Tensile strength

YS = Yield strength

# OTHER PROPERTIES

CS = Chain scission

CX = Crosslinking

CLASS: INSULATOR
Material: Acetal

Property	1	Radiation Data	1	Other Information*
	LTD (rads)	25CD (rads) (25CDR( <u>rads</u> ))	CD (rads)	
TS	<b>4</b> E8			(C)/In Air/Kamen, R.E., Radiation Effects on HS-350 Materials, Vol.1, Natural Space Radiation, Report 74-87, Hughes Air- craft Co., April, 1974, p. 6-9.

Materia	al: Acetal	resin		
TS	6E5	1.5E6	-50%,2.5E6	Van de Voorde, M. and Restat, C., Selection Guide to Organic Mater- ials for Nuclear Engin- eering, European Organi- zation for Nuclear Research Report No. CERU 72-7, 1972.
EL	6E5	1 E 6	-20%,0.9E6	Ibid.
EL			-50%,2E6	Ibid.
EL			-90%,3E6	Ibid.
TS			-20%,3E6	Parkinson, W. W. and Sisman, O., The Use of Plastics and Elastomers in Nuclear Radiation, Nucl. Engr. and Design, Vol. 17, p. 247, 1971.

Material: Acetal resin - Delrin

Property	1	Radiation Data	<u> </u>	Other Information*
	$ \begin{pmatrix} LTDR & (rads) \\ LTDR & (rads) \\ hr \end{pmatrix} $		$\begin{pmatrix} \text{CD} & (\text{rads}) \\ (\text{CDR} & (\text{rads} \\ \text{hr}) \end{pmatrix}$	
EL			-60%,2.2E6	Van de Voorde, M.H., Selection Guide, CERN 72-7, May 17, 1972, p. 43.
TS			-60%,3E6	Ibid.

Material	: A	cryli	C 1	resin
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TS		1.1E7		(C)/In Air/Kamen, R. E., et al, Radiation Effects on HS-350 Materials, Vol.1, Natural Space Radiation, Report p. 74-87, Hughes Aircraft Co., April, 1974, p. 6-9.
EL		1.1E7		Ibid.
EL	7E5	1E7	-50%,2E7	Kircher, J. F., and Bowman, R. E., (ed), Effects of Radiation on Materials and Com- ponents, Reinhold Publ. Corp., 1964.
TS	<b>7E</b> 5	1E7	-50% <b>,</b> 2E7	Ibid.

Material: Allyl diglycol carbonate resin

Property	1	Radiation Data	•	Other Information*
rroperty	LTD (rads)	25CD (rads)	CD (rads)	Other Information
	(LTDR (rads)		$\left(\frac{\text{CDR}}{\text{hr}}\left(\frac{\text{rads}}{\text{hr}}\right)\right)$	•
TS	l ara	, , , , ,	-20%,3.5E8	Parkinson, W. W., Nucl. Engr. and Design, Vol. 17, 1971, p. 257
TS			-50%,2E9	Ibid.
EL			-20%,2E9	Ibid.
HD			-20%,2E9	Ibid.
Material:	Aniline for	maldehyde		
HD	6.7E5	+ 1.3E7	-50%,1.2E8	Impact strength of Cibanite increased above threshold dose with a 25% increase at 1.3E7 but 50% loss at 1.2E8 rads/King, R.W., et al, The Effect of Nuclear Radiation on Elastomeric and Plastic Components and Materials, Battelle Memorial Institute Radiation Effects Information Center Report REIC 21, 1961, and Addendum, 1964.
TS	9.1E7	2. <b>4E</b> 9	-50%, 3.6E9	Ibid.

CLASS: INSULATOR.

Material:	Aniline	formald	ehyde
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	Material:	Aniline for	maldenyde		
_	Property		Radiation Dat	a	Other Information*
		LTD (rads) (LTDR (rads)			•
	IS	6.7E5			King, R.W., et al, The Effect of Nuclear Radiation on Elastomeric and Plastic Components and Materials, Battelle Memorial Institute Radiation Effects Information Center Report REIC 21, 1961, and Addendum 1964.
	TS		2.4E9	ľ	Ibid.
	TS		·	20% 450	
	15	·		-20%,4E9	Parkinson, W. W., Nucl. Engr. and Design, Vol.17, 1971, p. 253.
	TS			-50%,6E9	Ibid.
	EL			-20%,4E9	Ibid.
	EL			-50%,6E9	Ibid.
	HD			<b>-20%,</b> >5E9	Ibid.
•					
	· · · · · · · · · · · · · · · · · · ·				•

Material: Aniline formaldehyde-unfilled

Property	Altitue (Other	Radiation Date	Other Information*	
. I TOPET CY	LTD (rads) (LTDR (rads) hr)	25CD (rads)	CD (rads)	Odici Zili Olinacion
TS	1E8	3E9	-50%,4E9	Van de Voorde and Re- stat, C., Selection Guide to Organic Mater- ials for Nuclear Engin- eering, CERN 72-7, May 17, 1972, p. 59.
TS			-75%,4.5E9	Ibid.
EL	1E8	. 3E9	-50%,4E9	Ibid.
EL			-75%,4.5E9	Ibid.
EM	4E9			No change up to 4E9.
SS	1E8	<b>3E</b> 9	-50% <b>,</b> 4E9	Ibid.
SS			-75%,4.5E9	Ibid.
			-	
			,	
				·
			-	,

CLASS: INSULATOR
Material: Aramid

Property	Radiation Data			Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ (\text{-CDR} & (\text{rads} \\ \text{hr}) \end{pmatrix}$	
EL	<b>7E6</b>		-55%,1.4E7	King, R.W., et al, The Effect of Nuclear Radiation on Elasto- meric and Plastic Com- ponents and Materials, Battelle Memorial Insti- tute, Radation Effects Information Center Report REIC 21, 1961, and Addendum 1964.
EL			-55%,1.4E7	500°F/Ibid.

Material: Bakelite

Unstated

1E8

Baur, J. F., Radiation
Damage Limit for Diagnostic Components, General Atomic Co., July,
1981, p. 7.

TS -20%,7E7 Parkinson, W. W., Nucl. Engr.and Design, Vol.17, 1971, p. 256.

EL -20%,7E7 Ibid.

HD -20%,4E7 Ibid.

CLASS: INSULATOR
 Material: Cellulose

Property	Radiation Data				Other	Information*
TS	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR(rads) hr	)(_CDR (	(rads) ( <u>rads</u> )) hr)) ,4.4E6	Bolt, J. G. on Or	R.O. and Carroll, , Radiation Effects ganic Materials, mic Press, 1963.

Mater	ial:	Cellulose	acetate

TS			-20%,5E7	Parkinson,W.W., Nucl. Engr. and Design, Vol. 17, 1971, p.254.
TS			-50%,2E8	Ibid.
EL		·	-20%,4E7	Ibid.
HD			-20%,4E7	Ibid.
TS	<sub>.</sub> 8E5			Bolt, R. O. and Carroll J.G., Radiation Effects on Organic Materials, Academic Press, 1963.
IS		<b>2E</b> 7		Rads(C)/Nuclear and Space Radiation Effects on Materials, NASA SP-8053, June, 1970, p. 32.
SS		2E6	-50%,3E7	King, R.W., et al, The Effect of Nuclear Radiation on Elasto- meric and Plastic Components and Mater- ials, Battelle Memor- ial Institute Radia- tion Effects Infor- mation Center Report REIC 21, 1961, and Addendum, 1964.

Material: Cellulose acetate - film

material: Cellulose acetate - film					
Property	1.00	Radiation Da		Other Information*	
	LTD (rads (LTDR (rads hr)		$\begin{array}{c} \begin{array}{c} \text{CD} & (\text{rads}) \\ -\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{array}$		
TS	<b>4E6</b>	<b>3E</b> 7	-75%,1E8	Van de Voorde and Restat, C., Selection Guide to Organic Mater- ials for Nuclear Engin- eering, CERN 72-7, May 17, 1972, p. 44.	
SS	4E6	3E7	-75%,1E8	Ibid.	
EM	3E6	1	-5%,1E7	Ibid.	
EM			+10%,3E7	Ibid.	
EL	3E6		-10%,1E7	Ibid.	
EL			-20%,2E7	Ibid.	
EL			-75%,3E7	_ Ibid.	
				,	
		·			
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·					

Material: Cellulose acetate butyrate

Property		Radiation Data	<u> </u>	Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} CD & (rads) \\ -CDR & (\frac{rads}{hr}) \end{pmatrix}$	
EM			+20%,3.2E7	Parkinson, W. W., and Sisman, O., The Use of Plastics and Elastomers in Nuclear Radiation, Nucl. Engr. and Design, Vol. 17, p. 247, 1971.
TS			-20%,4E7	Parkinson, W. W., Nucl. Engr. and Design, Vol. 17, 1971, p. 254.
EL			-20%,4E7	Ibid.
HD			-20%,1E7	Ibid.

Material: Cellulose acetate butyrate - film

EM	1E6		+10%,1E7	Van de Voorde and Restat, C., Selec- tion Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 45.
EM			+20%,3E7	Ibid.
TS	2E6	2E7	-10%,1E7	Ibid.
TS			-50%,3E7	Ibid.
EL	2E6	2E7	-10%,1E7	Ibid.
EL			-50%,3E7	Ibid.
			Į	-

Mataidal.	0-111-00		heids made		£21
Material:	Celiniose	acetate	putyrate	-	TIIM

Property	<u> </u>	Radiation Data	Other Information*	
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> )	$\begin{pmatrix} \text{CD (rads)} \\ \text{CDR (} \frac{\text{rads}}{\text{hr}} \end{pmatrix}$	<u> </u>
SS	2E6	2E7	-10%,1E7	Ibid.
SS	· .		-50%,3E7	Ibid.

Material: Cellulose nitrate -

TS		-20%,5E7	Parkinson, W. W., Nucl. Engr. and De- sign, Vol. 17, 1971, p. 254.
EL .		-20%,8E6	Ibid.
HD	,	-20%,5E7	Ibid.

Material: Cellulose nitrate film

TS	1E6	2E7	+8%,1E7	Van de Voorde and Restat, C., Selection Guide to Organic Mater- ials for Nuclear Engin- eering, CERN 72-7, May 17, 1972, p. 45.
TS			-50%,3E7	Ibid.
SS	1E6	2E7	+8%,1E7	Ibid.
SS			-50%,3E7	Ibid.
EM-	1E6	3E7	+20%,1E7	Ibid.
EL	5E5	4E6	-50%,9E6	Ibid.
EL			-75%,2E7	Ibid.

Material:	Material: Cellulose propionate					
Property		Radiation Dat		Other Information*		
LTD (rads) 25CD (rads) _CD (rads) $\binom{\text{LTDR}}{\text{hr}}\binom{\text{rads}}{\text{hr}}\binom{25\text{CDR}}{\text{hr}}\binom{\text{rads}}{\text{hr}}\binom{\text{CDR}}{\text{hr}}$						
IR	<b>3E</b> 5	4.4E6	-50%,1E7	King, R. W., et al, The Effect of Nuclear Radiation on Elasto- meric and Plastic Com- ponents and Materials, Battelle Memorial Insti- tute Radiation Effects Information Center Re- port REIC 21, 1961, and Addendum, 1964.		
TS			-20%,6E6	Parkinson, W. W., Nucl. Engr. and Design, Vol. 17, 1971, p. 253.		
EL			-20%,6E6	Ibid.		
HD			-20%,6E6	Ibid.		
	·			·		
	į		·			

Material: Cellulose, Rayon

Property	Radiation Data			Other Information*
	(LTD (rads) (LTDR (rads) hr)		$\begin{pmatrix} \text{CD (rads)} \\ \left( \frac{\text{CDR}}{\text{hr}} \right) \end{pmatrix}$	
Unstated		1.6E7		Baur, J. F., Radiation Damage Limit for Diag- nostic Components, General Atomic Co., July, 1981, p. 9.

Material: Coil insulation, "prepres," glass reinforced epoxy Novolac

FS	3E8		+10%,1E9	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 67.
FS			+15%,3E9	Ibid.
FS			+10%,3E9	Ibid.
FS		1	+5%,6E9	Ibid.
EM	1E9	7E9	-10%,3E9	Ibid.
EM			-20%,6E9	Ibid.
·				

Material: Coil insulation, resin, glycidyl ether/epoxy Novolac

Property	Radiation Data			Other Information*
·	LTD (rads) (LTDR (rads) hr)	25CD (rade	CD (rads)	)
FS	1E8	1.5E9		Van de Voorde and Restat, , Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 67.
· FS			+5%,6E8	Ibid.
FS			-1%,1E9	Ibid.
FS			-50%,3E9	Ibid.
FS	,		-70%,3.5E9	Ibid.
HD	2E8	2.5E9	+3%,3E8	Shore D/Van de Voorde and Restat, C., Selec- tion Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 67.
HD			+3%,6E8	Ibid.
HD		•	+0%,1E9	Ibid.
HD			-40%,3.5E9	Ibid.
•	•	J		

Material:	Diallyl ph	Diallyl phthalate				
TS	1.8E9			Glass filled/Hanks, C. L., NASA CR 1787, 1971.		
	•	3	Ī			

Material: Diallyl phthalate, glass-filled

Proposition	•	ocharace, gra Dodiotion Dota		Other Informations
Property	LTD (rads)	Radiation Data 25CD (rads)		Other Information*
	(LTDR (rads)	(25CDR(rads))	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ (\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	•
TS <sup>-</sup>	1.8E9			Minor changes to 1E10/
	Ī			Hanks,C.L.,and Hamman, D.J., Electrical Insu-
	*			lating Materials and
	·			Capacitors,Radiation Effects Design Hand-
				book, NASA CR-1781,
	ِ ا			1971
Material:	Epoxy			_
Unstated	1E4			Baur, J.F.,Radiation
				Damage Limit for Diag- nostic Components,
	·			General Atomic Co.,
				July, 1981,p.7.
TS	1E7		-20%,1E9	(C)/Kamen,R.E.,Radia-
				tion Effects on HS-350
				Materials, Vol.I., Natural Space Radia-
				tion,Report 74-87,
	,			Hughes Aircraft Co., April, 1974,p.6-9.
TS			-100%,1E10	·
BV			-30%,1E7	Ibid.
BV			-70%,1E9	Ibid.
FS			-20%,1E8	(C)/Aromatic Curing
·				Agent/ Nuclear and
				Space Radiation Effects on Materials, NASA SP-
				8053, June.1970,p.30.
FS		1	-50%,1E9	Ibid.
FS		1	-50%,1E8	(C)/Aliphatic Curing
		1	· ·	Agent/Ibid.
		ļ		
	•	t		

Material: Epoxy

Property	Radiation Data			Other Information*
	LTD (rads)	25CD (rads)	_CD (rads)	
	$\left(\frac{\text{LTDR}}{\text{hr}}\right)$	(25CDR(rads)	(_CDR ( <u>rads</u> )	
	\ nr //	\ \ hr //	hr //	1
FS		·	-90%, 1E9	Ibid.

Material: Epoxy polymer, acid anahydride cured

FS -20%, 4E8 Parkinson, W. W., Nuclear Engr. and Design, Vol. 17, 1971, p. 253.

Material: Epoxy polymer, aliphatic amine cured

FS -20%, 2E8 Ibid.

Material: Epoxy, aromatic amine cured

FS -20%,>1E9 Ibid.

Material: Epoxy, glass reinforced, Araldite F + DDM

FS	4E7	<b>4</b> E9	+3%, 1E8	Van de Voorde, M. H., and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 70.
FS			+3%, 4E8	Ibid.
FS			+0%, 8E8	Ibid.
FS			-50%, 1E10	Ibid.
			•	
	1		,	

Material:	Fnoxvaglass-fille	d, x33-1020 + Hy906
	Thoyldings	0 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

Material:	Epoxy,gla	ss-filled,X	33-1020 + H	y906			
Property		Radiation Dat		Other Information*			
			$\begin{pmatrix} CD & (rads) \\ -CDR & (rads) \\ hr \end{pmatrix}$	•			
FS	<b>5</b> E5		+2%,1E6	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 69.			
			+8%,1E7	Ibid.			
•	ŀ		+12%,1E8	Ibid.			
			+18%,1E9	Ibid.			
			+18%,3E9	Ibid.			
			+0%,8E9	Ibid.			
	·		-15%,1E10	Ibid.			
EM	5E6	7E9	+2%,1E7	Ibid.			
			+5%,1E8	Ibid.			
			+9%,1E9	Ibid.			
			+0%,5E9	Ibid.			
			-35%,1E10	Ibid.			
Materi	Material: Epoxy Novolac + HY906 - glass laminate						
FS	1E9	6E9	-10%,2E9	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering,			

FS	1E9	6E9	-10%,2E9	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 68.
FS			-40%,8E9	Ibid.
EM	1E9	4.5E9	-10%,3E9	Ibid.
EM	·		-50%,8E9	Ibid.

Material: Ethyl cellulose - film

Property		Radiation Dat	a	Other Information*
	LTD (rads)	25CD (rads)	CD (rads)	
_	$\left(\frac{\text{LTDR}}{\text{hr}}\right)$	$(25CDR(\frac{rads}{hr})$	$\left(\frac{-CDR}{hr}\left(\frac{rads}{hr}\right)\right)$	
TS	3E6	1E7	-50%,2E7	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 46.
TS			-75%,3E7	Ibid.
EL	2E6	5E6	-50%,6E7	Ibid.
EL			-75%,2E7	Ibid.
EM	1 <b>E</b> 6	+1E8	+18%,1E7	Ibid.
EM			+20%,5E7	Ibid.
SS	3E6	1.5E7	-20%,1E7	Ibid.
SS			-50%,3E7	Ibid.
SS			-75%,1E8	Ibid.
IS	1.5E6	5E6	-50% <b>,</b> 1E7	King, R.W., et al, The Effect of Nuclear Radiation on Elasto- meric and Plastic Com- ponents and Materials, Battelle Memorial Insti- tute Radiation Effects Information Center Re- Port REIC 21, 1961, and Addendum, 1964.
TS			-20%,1E7	Parkinson, W. W., Nucl. Engr. and Design, Vol. 17, 1971, p. 253.
EL			-20%,6E6	Ibid.
HD	İ		-20%,8E6	Ibid.
*	,	Ţ		_

Material: Ethylene propylene

	Material:	Ethylene	propylene		
•	Property		Radiation Date		Other Information*
		LTD (rad:	$\binom{25CDR}{hr}$	$\begin{pmatrix} CD & (rads) \\ CDR & (rads) \\ hr \end{pmatrix}$	A017- Adm/6433 V T
	TS	1	3.8E7	-4%,1.4Ë6	G/In Air/Gillen, K. T., and Clough, R. L., Occurrence
			(1.6E3)	(1.6E3)	and Implication of Radiation Dose-Rate Effects in Material Aging Studies, NUREG/CR-2157, SAND80-1796RV, August 1981, p. 14.
	TS			-28%,4.1E7	Ibid.
				(1.6E3)	·
	TS			-38%,5.1E7	Ibid.
	. •			(1.6E3)	
	EL		1.4E7	-10%,4.5E6	Ibid.
			(1.6E3)	(1.6E3)	
	EL			-55%,3.4E7	Ibid.
				(1.6E3)	
	EL			-72%,5.1E7	Ibid.
				(1.6E3)	
	•				

mate: iai.	Etny	ene pro	by rene				
Property	<u>.</u>		Radiation Data			Other	Information*
	LTD (LTDR	(rads)	25CD (rads) (25CDR/rads)	_CD _CDR	(rads) (rads))	_	

Property		Radiation Date	3	Other Information*
TS	LTD (rads) (LTDR (rads))	25CD (rads) (25CDR( <u>rads</u> ) 6.4E7 (5.2E4)	_CD (rads) (_CDR (rads)) (-8%,1.7E7 (5.2E4)	G/In Air/Gillen, K. T., and Clough, R. L., Occurrence and Implication of Radiation Dose-Rate Effects in Material Aging Studies, NUREG/CR-2157, SAND80-1796RV, August 1981,
TS			-15%,3.8E7	p. 14. Ibid.
TS			(5.2E4) -28%,7.2E7	Ibid.
TS			(5.2E4) -43%,1.4E8	Ibid.
EL		1.5E7	(5.2E4) -28%,1.9E7	Ibid.
EL		(5.2E4)	(5.2E4) -46%,3.5E7	Ibid.
EL			(5.2E4) -58%,7.2E7	Ibid.
EL			(5.2E4) -75%,1.38E8	Ibid.
·			(5.2E4)	

Material: Ethylene propylene

Material:	Ethylene pro			
Property		Radiation Data		Other Information*
	LTD (rads) (LTDR (rads) hr	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} CD & (rads) \\ (CDR & (rads) \\ hr \end{pmatrix}$	•
TS	2E7		-2%,3E7	G/In Nitrogen/Gillen, K. T.,
	(8.7E4)	•	(8.7E4)	and Clough, R. L., Occurrence and Implications of Radiation Dose-Rate Effects in Material Aging Studies, NUREG/CR-2157, August 1981, p. 14.
TS			-4%,4.5E7	Ibid.
			(8.7E4)	
TS			-2%,1.2E8	Ibid.
			(8.7E4)	
TS			+1%,1.7E8	Ibid.
			(8.7E4)	
EL	1E6	1.2E7	-40%,3E7	Ibid.
	(8.7E4)	(8.7E4)	(8.7E4)	
EL	·		-50%,4.5E7	Ibid.
			(8.7E4)	
EL			-65%,1.2E8	Ibid.
			(8.7E4)	
EL			-72%,1.7E8	Ibid.
			(8.7E4)	
•			!	
	·	·		

Material: Ethylene propylene

Material:	Ethylene pr	opylene		
Property		Radiation Date		Other Information*
	LTD (rads) (LTDR (rads)		$\begin{pmatrix} CD & (rads) \\ CDR & (rads) \\ hr \end{pmatrix}$	Ac/1- Aim/Pillon V T
TS		9.5E7	-27%,1.7E8	G/In Air/Gillen, K. T., and Clough, R. L., Occurrence
		(1.2E6)	(1.2E6)	and Implication of Radiation Dose-Rate Effects in Material Aging Studies, NUREG/CR-2157, SAND80-1796RV, August 1981, p. 14.
TS ·			-12%,2E7	Ibid.
			(1.2E6)	
TS			-21%,5.8E7	Ibid.
. •			(1.2E6)	
		1	-27%,1.7E8	Ibid.
			(1.2E6)	
EL		1.5E7	-37%,2E7	Ibid.
		(1.2E6)	(1.2E6)	
EL			-50%,5.8E7	Ibid.
			(1.2E6)	
EL			-57%,9.5E7	Ibid.
			(1.2E6)	
EL			-72%,1.7E8	Ibid.
			(1.2E6)	
				_
	<b>v</b> 1	7		

Other Information\*

25

CLASS: INSULATOR

Property

Material: Ethylene propylene: Supplier; Alfacavi

Radiation Data

	LTD (rads) (LTDR (rads) hr)		$\frac{1}{2} \frac{\text{CD}}{\text{CDR}} \left( \frac{\text{rads}}{\text{hr}} \right)$	·
EL	<1E6 (1E7)	2.1E7 (1E7)	-36%,3.4E7 (1E7)	G/In Air/Insulator/Schon- bacher, H., and Stolarz- Izycka, A., Compilation of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979, p. 55.
EL	İ		-60%,1.1E8	Ibid.
•			(1E7)	
HD	1E6		-6%,3.4E7	Ibid.
	(1E7)		(1E7)	
HD			-7%,9.8E7	Ibid.
			(1E7)	
TS	1E6		+9%,3.1E7	Ibid.
	(1E7)		(1E7)	
TS			+13%,1.0E8	Ibid.

(1E7)

Material: Ethylene propylene

	Ethylene p		·	
Property		Radiation Dat		Other Information*
	LTD (rads) (LTDR (rads) hr)		$\begin{pmatrix} CD & (rads) \\ -CDR & (\frac{rads}{hr}) \end{pmatrix}$	
CS	5E6	9E6	-28.6%,1E7	Blodgett, R.B. and Fisher, R.G., "In-sulations and Jackets for Control and Power Cables in Thermal Reactor Nuclear Generating Stations," IEEE Trans. Power Apparatus and Systems, Vol. PAS-88, No. 5, p. 529, 1969.
EL	5E6		-52%,5E7	EDPM/Ibid.
EL			-63%,1E8	Ibid.
EL			-19%,5E6	EDM/Ibid.
EL			-59%,5E7	EDM/Ibid.
EL			-74%,1E8	EPM/Ibid.
TS			-20%,5E8	Parkinson, W.W., Nucl. Engr. and Design, Vol. 17, 1971, p. 272.
EL			-20%,2.5E8	Ibid.

Material: Ethylene propylene F234

•	•	propylene F		
Property		Radiation Dat		Other Information*
	LTD (rads) (LTDR (rads) hr)		$\begin{pmatrix} CD & (rads) \\ -CDR & (\frac{rads}{hr}) \end{pmatrix}$	1
TS	1E5	2E6	-50%,2E8	Van de Voorde,M., Restat, C., Selec- tion Guide to Org- abic Materials for Nuclear Engineer- ing, CERN 72-7, May 17, 1972, p. 80.
TS			-60%,1E9	Ibid.
TS		·	-75%,3E9	Ibid.
EL	1E5	7E6	-10%,2E5	Ibid.
EL		,	-20%,1E6	Ibid.
EL			-50%,2.5E7	Ibid.
EL			-75%,2E8	Ibid.
HD	3E7	<b>+5E7</b>	+10%,1E8	Durometer Hardness/ Van de Voorde,M.,and Restat, C., Selec- tion Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 80.
HD			+35%,1E9	Ibid.

Material: Ethylene propylene diene monomer; Supplier: Pirelli

Material:	Ethylene propyrene diene monomer; oupprier					
Property		Radiation Data		Other Information*		
	LTD (rads) (LTDR (rads)	25CD (rads) (25CDR(rads))	$\begin{pmatrix} CD & (rads) \\ (CDR & (rads) \\ hr \end{pmatrix}$			
EL	1E6	2E7	-36%,2.8E7	G/In Air/Medium Voltage		
	(1E7)	(1E7)	(1E7)	Insulator/Schonbacher, H., and Stolarz-Izycka, A., Compilation of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979, p. 36.		
EL			-68% ,6.2E7	Ibid.		
			(1E7)			
EL.			-85%,1.4E8	Ibid.		
			(1E7)			
EL			-93%,2.7E8	Ibid.		
			(1E7)	·		
EL			-98%,5.0E8	Ibid.		
			(1E7)			
TS	1E7	3 J E7	-18%,2.7E7	Ibid.		
	(1E7)	(1E7)	(1E7)			
TS			-47%,8.5E7	Ibid.		
			(1E7)			
TS	·		-46%,1.8E8	Ibid.		
•			(1E7)			
TS			-38%,5.1E8	Ibid.		
			(1E7)			
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CLASS: INS

INSULATOR

OLASS.	-							
Material:	terial: Ethylene propylene diene monomer ;Supplier: Draka							
Property		Radiation Dat	Other Information*					
	LTD (rads) (LTDR (rads) hr)		$\begin{pmatrix} \text{CD} & (\text{rads}) \\ \text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	1				
EL	1E6	1.5E7	-29%,1,7E7	G/In Air; Supplier; Draka /Schonbacher,				
	(1E7)	(1E7)	(1E7)	H., and Stolarz- Izycka, A., Compil- ation of Radiation Damage Test Data, Part I, CERN 70-04, 18 June 1979, p. 35.				
EL			-56%,5.1E7	Ibid.				
EL			(1E7) -69%,1.4E8	Ibid.				
			(1E7)					
EL			-90%,5.1E8	Ibid.				
			(1E7)					
TS	2E6	+4E7	+28%, 6 E7	Ibid.				
	(1E7)	(1E7)	(1E7)	*				
TS			+53%,1.5E8	Ibid.				
			(1E7)					
TS			+63%,1.9E8	Ibid.				
			(1E7)					
TS			+106%,4.9E8	Ibid.				
	·		(1E7)					
				•				

ourss.									
Material:	Ethylene p	ropylene di	; Supplier; Pirelli						
Property		Radiation Dat	Other Information*						
	LTD (rads) (LTDR (rads) hr)		$\binom{\text{CD (rads)}}{\binom{\text{CDR (rads)}}{\text{hr}}}$	•					
EL		2E7 (1E7)	-26%,2.1E7 (1E7)	G/In Air/Low Volt- age Insulator/Schon- bacher, H., and Stolarz-Izycka, A., Compilation of Radia- tion Damage Test Data, Part 1, CERN 79-04, 18 June 1979, p. 36.					
EL			-49%,4.0E7 (1E7)	Ibid.					
EL	·		-75%,9.0E7 (1E7)	Ibid.					
EL	·		-91%,2.0E8 (1E7)	Ibid.					
EL			-98%,4.9E8 (1E7)	Ibid.					
TS		1.6E7 (1E7)	-41%,2.2E7 (1E7)	Ibid.					
TS			-55%,4.8E7 (1E7)	Ibid.					
TS			-14%,9.3E7 (1E7)	Ibid.					
TS			<del>1</del> 27%,2.0E8 (1E7)	Ibid.					

Material: Ethylene propylene diene monomer; Supplier;Datwyler Property Radiation Data Other Information\* LTD (rads) 25CD (rads) CD (rads)  $\left(\frac{\text{LTDR}}{\text{hr}}\left(\frac{\text{rads}}{\text{hr}}\right)\right)$  $\binom{25\text{CDR}(\frac{\text{rads}}{\text{hr}})}{}$  $\frac{\mathsf{CDR}}{\mathsf{hr}}\left(\frac{\mathsf{rads}}{\mathsf{hr}}\right)$ EL 4.5E7 -20%,2.7E7 G/In Air/Insulator/ Schonbacher, H., and (1E7) (1E7) Stolarz-Izycka, A., Compilation of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979, p.37. EL -44%,7.9E7 Ibid. (1E7) EL -64%,2.0E8 Ibid. (1E7)EL -80%,5.1E8 Ibid. (1E7) HD +1.2%,1.2E8 Ibid. (1E7)HD +1.4%,5.0E8 Ibid. (1E7)TS 3E7 -3%,1.0E8 **4E8** Ibid. (1E7)(1E7) (1E7)TS -34%,4.9E8 Ibid. (1E7)

Material: Ethylene propylene diene monomer: Supplier: Dolder

Property		Radiation Dat		Other Information*
	LTD (rads) (LTDR (rads)	25CD (rads)		
EL		1.5E7	-53%,3.0E7	G/In Air/Nordel/Schonbacher,
		. (1E7)	(1E7)	H., and Stolarz-Izycka, A., Compilation of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979, p. 37.
EL		,	-64%,1.1E8	Ibid.
	İ		(1E7)	
EL			-78%,2.5E8	Ibid.
			(1E7)	•
EL			-87%,5.2E8	Ibid.
			(1E7)	·
HD		+6E7	+18%,4.2E7	Ibid.
		(1E7)	(1E7)	
HD			+40%,1.5E8	Ibid.
			(1E7)	
HD			+66%,5.0E8	Ibid.
			(1E7)	
TS	1.5E7		-4%,3.4E7	Ibid.
	(1E7)		(1E7)	
. TS			-4%,1.4E8	Ibid.
	·		(1E7)	
TS			-8%,5.1E8	Ibid.
			(1E7)	

Material: Ethylene propylene diene monomer; Supplier - Dolder.

Property		Radiation Data		Other Information*
	LTD (rads)	25CD (rads) (25CDR <u>(rads</u> ))	_CD (rads) (_CDR (rads))	
EL	(LTDR (rads)	2.1E7 (1E7)	-43%,3.8E7 (1E7)	G/In Air/Nordel Insulating Compnd./Schonbacher, H., and Stolarz-Izycka, A., Compilation of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979, p. 38.
EL			-80%,1.5E8	Ibid.
	•		(1E7)	
EL			-91%,4.9E8	Ibid.
,			(1E7)	
HD	1 E 7		+0.6%,3.6E7	Ibid.
	(1E7)	·	(1E7)	
HD			-2%,1.4E8	Ibid.
			(1E7)	
HD			+2%,5.1E8	Ibid.
			(1E7)	
TS		1E8	-7%,4.3E7	Ibid.
		(1E7)	(1E7)	
TS			-33%,1.6E8	Ibid.
			(1E7)	
TS			-48%,5.0E8	Ibid.
•			(1E7)	
		1		1

Material: Ethylene propylene diene monomer; Supplier; Dolder.

Property	rendienc t	Radiation Dat		Other Informations
	LTD (rads)			Other Information*
		(25CDR/rads)	$\left(\frac{\text{CDR}}{\text{hr}}\right)$	
	hr	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	ハー \hr //	4
EL		4E7	-18%,3.1E7	G/In Air/Nordel,
*	ì	(1E7)	(1E7)	Flame Retardant, Schonbacher, H.,
			(.2//	and Stolarz-Izycka,
	i	1		A., Compilation of Radiation Damage
	ł		·	Test Data, Part I,
•				CERN 79-04, 18 June 1979, p. 38.
EL			-51%,8.1E7	Ibid.
			(1E7)	
EL			-77%,1.9E8	Ibid.
			(1E7)	
EL			-84%,4.9E8	Ibid.
			(1E7)	
HD	1E9	2.2E8	+19%,2.1E8	Ibid.
	(1E7)	(1E7)	(1E7)	
HD			+54%,4.9E8	Ibid.
			(1E7)	
TS	1E7		-12%,4.2E7	Ibid.
	(1E7)		(1E7)	
TS			-16%,1.6E8	Ibid.
	•		(1E7)	
TS		+	-18%,4.9E8	Ibid.
	j	į	(LE7)	
	•	•		

Material: Ethylene propylene diene monomer; Supplier; Dolder Property Radiation Data Other Informations

Property		Radiation Date		Other Information*
	LTD (rads)	25CD (rads)	CD (rads)	- Vener Información
	(LTDR (rads)	$\left(\frac{25\text{CDR}}{\text{hr}}\right)$	$\left(\frac{-CDR}{hr}\right)$	).
EL		3.3E7 (1E7)	-24%,3.1E7 (1E7)	G/In Air/Nordel, Flame Retardant/ Schonbacher, H., and Stolarz- Izycka, A., Compilation of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979, p. 39.
EL			-57%,9.0E7	Ibid.
			·(1E7)	
EL			-82%,5.1E8	Ibid.
			(1E7)	
HD			8%.4.2E7	Ibid.
			(1E7)	·
HD			14%,1.6E8	Ibid.
			(1E7)	
HD			42%,5.2E8	Ibid.
	·		(1E7)	
TS		·	-13%,4.1E7	Ibid.
			(1E7)	
TS		1.4E8		Ibid.
		(1E7)		
TS		İ	-32%,5.0E8	Ibid.
			(1E7)	
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l	}			
	_	_	-	•

CLASS: INSULATOR

Material: Ethylene propylene diene monomer; Supplier; Datwyler.

Material:	•	propyrene o	Tene monome	, supplied y sales
Property		Radiation Dat		Other Information*
	LTD (rads) (LTDR (rads) hr)			
EL		1.6E7	-45%,3.2E7	G/In Air/Basis EPDM-PE,Jacket/ Schonbacher, H., and Stolarz-
		(1E7)	(1E7)	Izycka, A., Compilation of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979, p. 39.
EL			-61%,1.0E8	Ibid.
			(1E7 <u>)</u>	
EL			-79%,5.3E8	Ibid.
			(1E7)	
HD		+1.2E8	+10%,3.3E7	Ibid.
	·	(1E7)	(1E7)	<b>.</b>
HD			+22%,1.1E8	Ibid.
			(1E7)	That
HD			+43%,4.4E8	Ibid.
<b>-</b> r		+ 3E7	(1E7) <b>+28%,3.1E</b> 7	Ibid.
TS		(1E7)	(1E7)	.5.0
TS		(127)	+ 70%,1.2E8	Ibid.
			(1E7)	
TS			+ 140%,5.1E8	Ibid.
			(1E7)	
				<del>"</del>

Material: Ethylene propylene diene monomer; Supplier - Datwyler.

material:	•			, Supplier - Datayler.
<u>Property</u>		Radiation Date		Other Information*
	LTD (rads) (LTDR (rads) hr)		$\begin{pmatrix} \text{CD} & (\text{rads}) \\ (\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	4
EL		3.5E7	-31%,3.8E7	G/In Air/Pyrofil,
		(1E7)	(1E7)	Insulator/Schonbacher, H., and Stolarz-Izycka, A., Compilation of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979, p. 40.
EL .			-59%,1.5E8	Ibid.
			(1E7)	
EL		`	-77%,4.9E8	Ibid.
			(1E7)	
HD			+15%,4.2E7	Ibid.
			(1E7)	
HD .		_	+19%,1.7E8	Ibid.
		·	(1E7)	·
HD			+23%,4.9E8	Ibid.
			(1E7)	
TS	4E7		-13%,1.5E8	Ibid.
	(1E7)	*	(1E7)	
TS			-21%,5.0E8	Ibid.
			(1E7)	
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	j j			

Material: Ethylene propylene diene monomer; Supplier - Datwyler.

Property	1	Radiation Date	<b>a</b>	Other Information*
	LTD (rads) (LTDR (rads)	25CD (rads)		
EL	hr	3.2E7 (1E7)	-30%, 4.5	G/In Air/Pyrofil, Jacket/ Schonbacher, H., and Stolarz- Izycka, A., Compilation of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979, p. 40.
EL			-62%,1.5E8	Ibid.
	•		(1E7)	
EL			-80%,5.0E8	Ibid.
	·		(1E7)	
HD			+ 5%,3.8E7	Ibid.
			(1E7)	•
HD			+ 7%,1.3E8	Ibid.
•			(1E7)	
HD			+ 16%,5.2E8	Ibid.
			(1E7)	
TS	2E7		+ 8%,3.9E7	Ibid.
	(1E7)		(1E7)	÷
TS			-6%,1.1E8	Ibid.
			(1E7)	
TS			-12%,5.0E8	Ibid.
			(1E7)	·
		4		
ł	j.	I		

Material: Ethylene-propylene-diene with Con-BACN

Property		Radiation Dat		Other Information*
_	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR(rads) hr	$\left(\begin{array}{c} CD & (rads) \\ -CDR & \left(\frac{rads}{hr}\right) \end{array}\right)$	· •
TS			-27%,1E8 (5E5)	G. Cobalt-60/Room Temp./ Morita, Y, et. al., Protect. Effects on Con-BACN on Radia- tion Deteriation of EPR J. Appl. Poly. Sci., Vol. 27 No. 9, September 1982, pp. 3569-3576.
TS			-6.6.2E8 (5E5)	Ibid.
TS			+6.6.4E8 (5E5)	Ibid.
TS			+0%,6E8 (5E5)	Ibid.
TS		·	+33%,8E8 (5E5)	Ibid.
TS			+46%,1E9 (5E5)	Ibid.
EL		4.4Ė7 (5E5)	-70%,1E8 (5E5)	Ibid.
EL			-73%,2E8 (5E5)	Ibid.
EL		·	-83%,4E8 (5E5)	Ibid.
EL	·		-90%,8E8 (5E5)	Ibid.
EL			-92%,1E9 (5E5)	Ibid.
			·	

Material: Ethylene vinyl acetate: Supplier; Kabel-Metall

Property	_	Radiation Dat		Other Information*
	LTD (rads)	25CD (rads)	CD (rads)	00101 21110111101
	(LTDR (rads)	$(25CDR(\frac{rads}{hr})$	$\left(\frac{\text{CDR}}{\text{hr}}\right)$	_
EL ~	1E7	2.5E7	-48%,5.0E7	G/In Air/Insulator, Kabel-Metall/Schon-
,	(1E7)	(1E7)	(1E7)	bacher, H., and Stolarz-Izycka, A., Compilation of Radia- tion Damage Test Data, Part I, CERN 79-04, 18 June 1979, p. 61.
EL			-82%,1.9E8	Ibid.
			(1E7)	
EL			-93%,5.0E8	Ibid.
			(1E7)	
HD	4E7	+1.8E8	+2%,4.8E7	Ibid.
·		(1E7)	(1E7)	
HD			+21%,1.6E8	Ibid.
			(1E7)	
HD			+61%,5.0E8	Ibid.
			(1E7)	
TS	1.5E7		-12%,3.9E7	Ibid.
			(1E7)	
TS			-16%,1.4E8	Ibid.
	·		(1E7)	
TS	· [		+14%,4.9E8	Ibid.
			(1E7)	
	}	l		•

Material: Ethylene vinyl acetate: Supplier; AEG-Telefunken

	Ethylene Vir			G-Telefunken
Property		Radiation Dat		Other Information*
	LTD (rads) (LTDR (rads)	25CD (rads) (25CDR(rads) hr	$\begin{pmatrix} CD & (rads) \\ CDR & (rads) \\ hr \end{pmatrix}$	)
EL	1E7	2.3E7	-42%,4.1E7	G/In Air/46J-1,AEG- Telefunken/Schon-
	(1E7)	(1E7)	(1E7)	bacher, H., and Stolarz- Izycka, A., Compilation of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979, p. 61.
EL			-76%,1.5E8	Ibid
			(1E7)	
EL			-96%,5.1E8	Ibid.
	į		(1E7)	
HD	3E7	+6E8	+12%,8.2E7	Ibid.
	(1E7)	(1E7)	(1E7)	
HD			+23%,5 E8	Ibid.
			(1E7)	
TS	7E7	2E8	-11%,6.9E7	Ibid.
	(1E7)	(1E7)	(1E7)	
TS			-43%,5.1E8	Ibid.
			(1E7)	
			•	

Material: Furan resin, Duralon

Property	·	Radiation Data	1	Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ (\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	1
TS	<b>3</b> E8	3E9		Kircher, J. F., and Bowman, R. E., (ed.), Effects of Radiation on Materials and Com- ponents, Reinhold Publ. Corp., 1964.
EL	3E8	3E9		Ibid.

Material: Furan resin - graphite filled

	9		
TS		<b>-20%,</b> >2E9	Parkinson, W. W., Nucl. Engr. and Design, Vol. 17, 1971, p. 258.
EL		-20%, >2E9	Ibid.
HD		-20%, >2E9	Ibid.
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CLASS: INSULATOR

Material: Melamine formaldehyde

Property		Radiation Data	1	Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ -\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	1
TS	6.7E6	6.6E7	-50%,1.6E8	King, R.W., et al, The Effect of Nuclear Radiation on Elasto- meric and Plastic Com- ponents and Materials, Battelle Memorial Insti- tute Radiation Effects Information Center Re- port REIC 21, 1961, and Addendum, 1964.
EL	6.7E6	,		Ibid.
SS	6.7E6			Ibid.

Material: Melamine formaldehyde, cellulose filled

TS		-20%,5E7	Parkinson, W. W., Nucl. Engr. and Design, Vol. 17, 1971, p. 259.
EL		-20%,5E7	Ibid.
HD		-20% <b>,</b> 2.2E9	Notch Impact Test/ Ibid.

Material: Melamine formaldehyde, cellulose filled

Material: Property		maldehyde, ce Radiation Data	llulose filled	Other Information*
.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	LTD (rads) (LTDR (rads) hr)	25CD (rads)	$\begin{pmatrix} CD & (rads) \\ CDR & (rads) \\ hr \end{pmatrix}$	1
TS .	3E6	<b>7E</b> 7	-50%,1.6E8	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 59.
TS			-75%,5E8	Ibid.
TS			-90%,2E9	Ibid.
EL	3E6	<b>7</b> E7	-50%,1.6E8	Ibid.
EL			-75%,5E8	Ibid.
EL	<u>.</u>	,	-90%,2E9	Ibid.
EM	3E8	2E10	-20%,1.5E9	Ibid.
SS	5E6	4.5E8	-10%,1E8	Ibid.
SS			-50%,1E9	Ibid.
SS			-75%,2E9	Ibid.
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CLASS: INSULATOR Material: Parylene

Property		Radiation Data	<b>1</b>	Other Information*
	LTD (rads) $\frac{\text{LTDR}}{\text{hr}}$		$\begin{pmatrix} \text{CD} & (\text{rads}) \\ (\text{-CDR} & (\text{rads} \\ \text{hr}) \end{pmatrix}$	
. OC	8E7			E, 2 Mev/In Air/Tech- nology Letter, Union Carbide, January, 1974, p. 9.
FS	<b>2E</b> 10			Fast Electrons/In Argon/ Ibid.
FS	2E10			Fast Electrons/In Air/ Ibid.

Material	: Parylene	N		
TS	1E8			G/In Argon/Technology Letter, Union Carbide,
	(1.6E6)			January, 1974, p. 9.
EM	1E9			G/In Vacuum/Ibid.
	(1.6E6)		j	No significant change.
EL	1E9			G/In Vacuum/Ibid.
	(1.6E6)			No significant change.
DE	1E8	٠		G/In Argon/Ibid.
	(1.6E6)			No significant change.
		!		

Material: Phenol formaldehyde with asbestos filled

Property		Radiation Data	<u> </u>	Other Inform	nation*
	LTD (rads) (LTDR (rads) hr)	$\binom{25CD (rads)}{\binom{25CDR}{hr}}$	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ (\text{-CDR} & (\text{rads} \\ \text{hr}) \end{pmatrix}$		
TS		3.9E9		Rads (C)/Nuc Space Radiat Effects on M NASA SP-8053 1970, p. 30.	ion laterials, , June,

TS	1E8	<b>3E9</b>	-10%,1E9	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7 May 17, 1972, p. 71.
EL	3E7	<b>8</b> E8	-10%,1E8	Ibid.
EM	<b>&gt;</b> 8E8		· ·	Ibid.
SS	1E8	3E9	-10%,1E9	Ibid.

Material: Phenol formaldehyde - linen laminate filled

			en laminate fi	
Property	LTD (rads)	Radiation Dat 25CD (rads)	CD (rads)	Other Information*
	(LTDR (rads)	(25CDR(rads)	$\left(\frac{\text{CDR}}{\text{hr}}\left(\frac{\text{rads}}{\text{hr}}\right)\right)$	
. TS	7E5	1.8E7	-2%,1E6	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 72.
TS			-50%,1E8	Ibid.
TS		,	-75%,7E8	Ibid.
TS			-90%,3E9	Ibid.
EL	4E5	3E6	-50%,8E6	Ibid.
EL			-75%,3E7	Ibid.
EL			-85%,1E8	Ibid.
EL			-90%,1E9	Ibid.
EL			-95%,4E9	Ibid.
EM	.7E5	4E8	+5%,3E6	Ibid.
EM			+2%,1E7	Ibid.
EM			+0%,1.5E7	Ibid.
EM			-10%,4E7	Ibid.
EM			-20%,1E8	Ibid.
EM			-50%,1.5E9	Ibid.
EM			-75%,2.5E9	Ibid.

CLASS: INSULATOR

Material: Phenol formaldehyde - paper filled

Property		Padiation Dat	0.41 Y 6 A-2 +	
Property	LTD (rads)	Radiation Dat 25CD (rads)	CD (rads)	Other Information*
	(LTDR (rads)	(25CDR(rads)	(-CDR (rads))	<b>)</b>
TS	5£5	3E7 '''	1 -15%,1E7 //	Van de Voorde and Re- stat, C., Selection Guide to Organic Mat- erials for Nuclear
				Engineering, CERN 72-7, May 17, 1972, p. 72.
TS			-50%,1E8	Ibid.
TS			-75%,4E8	Ibid.
TS			-90%,1E9	Ibid.
EL	4E6	3E7	-15%,1E7	Ibid.
EL			-50%,1E8	Ibid.
EL			-75%,4E8	Ibid.
EL			-90%,1E9	Ibid.
EM	<b>5</b> E5	3.5E8	+20%,1E7	Ibid.
EM			+0%,7E7	Ibid.
EM			-50%,8E8	Ibid.
SS	5E5	3E7	-15%,1E7	Ibid.
<b>S</b> S		,	-50%,1E8	Ibid.
SS			-75%,4E8	Ibid.
SS			-90%,1E9	Ibid.
	į			
	•			

Material: Phenol formaldehyde - unfilled

Property		Radiation Dat	<b>a</b> _	Other Information*
	LTD (rads)	25CD (rads)	_CD (rads) \/_CDR (rads)\	
TS	(LTDR (rads) hr) 3E6	(25CDR( <u>rads</u> ) hr 2.5E9	)(_CDR ( <u>rads</u> ))   -2%,1E7	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 71.
TS			-10%,4E7	Ibid.
TS	,	•	-20%,1E8	Ibid.
TS			-50%,4.5E9	Ibid.
TS			-75%,7E9	Ibid.
TS			-90% <b>,</b> 8E9	Ibid.
EL	2.5E6	6E8	+25%,7E6	Ibid.
EL			+30%,1E7	Ibid.
EL			+100%,5E7	Ibid.
EL			+110%,1.5E8	Ibid.
EL			+100%,2.3E8	Ibid.
EL			+50%,4E8	Ibid.
EL	·	·	+0%,5E8	Ibid.
EL			-50%,7E8	Ibid.
EM	3E6	2.5E9	-2%,1E7	Ibid.
EM			-10%,4E7	Ibid.
EM		٠	-20%,1E8	Ibid.
EM			-50%,4.5E9	Ibid.
EM			-75%,7E9	Ibid.
EM	,	Į	-90%,8E9	Ibid.

CLASS: INSULATOR
Material: Phenolic

Material:	Phenolic		•	•
Property		Radiation Dat		Other Information*
	LTD (rads) (LTDR (rads)		$\begin{pmatrix} \text{CD} & (\text{rads}) \\ -\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	
EL	<b>3</b> E5			Hanks, C. L. and Hamman, D. J., Radiation Effects Design Handbook, Section 3 NASA Report CR-1787, 1971 and King, R. W., et al, Battelle (Columbus) REIC Report 21, 1961 and Addendum, 1964.
TS	2E7 (2.2E3)	3E8 (2.2E3)	-50%,5E8 (2.2E3)	P/In Vacuo/Rowe, W., JPL Internal Report, 1982, p. 3-12.
TS	5E7		-50%,3E8	Rads(C)/Nuclear and Space Radiation Effects on Materials, NASA SP-8053, June 1970, p. 30.
IS	5E7		-50%,3E8	Ibid.
TS			-10%,1E7	(C)/Vacuum/Kamen, R.E., Radiation Effects on HS-350 Materials, Vol. I, Natural Space Radia- tion, Report 74-87, Hughes Aircraft Co., April, 1974, p. 6-11.
				·

CLASS:

**INSULATOR** 

Material:

Phenolic, cast

Property	Radiation Date	a	Other Information*
	LTD (rads) 25CD (rads) (LTDR (rads) (25CDR(rads))	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ -\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	
TS		-20%, 2E8	Parkinson, W. W., Nucl. Engr. and Design, Vol. 17, 1971, p. 257.
EL		-20%, 8E8	Ibid.
HD		-20%, 2E8	Ibid.

Material:	Phenolic.	filled	asbestos	fahric
Hucci iui.	I HEHOLICS	111164	<b>43053603</b>	Idulic

TS		-20%, >1E9	Ibid.
EL ·	, · · ·	-20% 4E8	Ibid.
HD		-20%, 4E8	Ibid.

Material: Phenolic, linen fabric filled

TS		ł	-20%, 1E7	Ibid.
TS	i l		-50%, 2E8	Ibid.
EL			-20%, 4E6	Ibid.
EL			-50%, 1E7	Ibid.
HD			-20%, 4E6	Ibid.
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CLASS:

**INSULATOR** 

Material: Polyacrylonitrile

Property		Radiation Data	1	Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> ))	_CD (rads) (_CDR ( <u>rads</u> )	),
TS	1E6 -			Dole, M., The Radiation Chemistry of Macromolecules, I IVol. II, Academic Press, 1973.
TS		·	>-50%, 8E6	Bolt, R. O. and Carroll, J. G., Radiation Effects on Organic Materials, Academic Press, 1963.

Material: Poly-alpha-methylchloroacrylate

TS	5E4	3E6	+5%, 5E5	Van de Voorde, M. H., and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 44.
TS			-75%, 5E6	Ibid.
EL	5E4	2E6	+2%, 5E5	Ibid.
EL			-75%, 5E6	Ibid.

	-20%, 4E7	Parkinson, W. W., Nuclear Engineering and Design,
		Vol. 17, 1971, p. 252.

CLASS: INSULATOR
Material: Polyamide

material:	Polyam1de			
<u>Property</u>		Radiation Dat		Other Information*
	LTD (rads) (LTDR (rads)	25CD (rads) (25CDR(rads) hr	$\begin{array}{c} CD & (rads) \\ CDR & (rads) \\ \hline \end{pmatrix}$	),
· TS	<b>5</b> E5	1E7	-50% <b>,</b> 4E7	Van de Voorde, M.H., and stat, C., Selection Guide to Organic Mat- erials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 49.
TS			-65%,1E8	Ibid.
EL	5E5	1 <u>E</u> 7	-50%,4E7	Ibid.
EL			-65%,1E8	Ibid.
EM	1E7		+7%,1E8	Ibid.
EM			+10%,2E8	Ibid.
SS	1E7		+5%,1E8	Ibid.
SS			+6%,2E8	Ibid.
EL	<b>8E</b> 5	4E6		(C)/Kamen, R. E., Radiation Effects on HS-350 Materials, Vol. I, Natural Space Radiation, Report 74-87, Hughes Aircraft Co., April, 1974, p. 6-12.
IS	8E5	4E6		Ibid.
Unstated	2E4			G/Bussard, R.W., and DeLauer, R. D., Fund. of Nuclear Flight, McGraw-Hill Co., 1965, p.341.
· [*	)	[		•

Material: Polyamide, Nylon

Property	1	Radiation Data	<b>a</b>	Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> )	$\begin{pmatrix} \text{CD (rads)} \\ \text{CDR (} \frac{\text{rads}}{\text{hr}} \text{)} \end{pmatrix}$	1
TS		·	-20%, <b>)</b> 1E10	Parkinson, W. W., Nucl. Engr. and De- sign, Vol. 17, 1971, p. 256.
. EL		·	-20%,7E6	Ibid.
HD			-20%,4E6	Ibid.
WC .	<b>3E7</b>		·	E,2 Mev/In Vac./ Bouquet, F.L., and Phillips, A., Radia- tion Test of Materials for Galileo Spacecraft, JPL Report D380, Novem- ber 18, 1982, p. 15.

Material	: Polyamide	, Nylon (6,6)		
TS	1.3E8	<b>+</b> 5E9		Goetzel, C. G., and Singletary, J. B., Space Materials Hand-book, Lockheed Missiles and Space Corp., January, 1962, p. 335.
EL	8E5	8.3E6	-50%,5E7	Ibid.

EL

EL

EL

EL

EL

Material: Polyamide, aliphatic - Nylon

Property	<u>_</u>	<u>Radiation Data</u>		Other Information*
	LTD (rads) (LTDR (rads) hr)		$\binom{CD}{\binom{CDR}{hr}}\binom{rads}{hr}$	1
BS	8.7E4	·	-15%,8.7E6	King, R.W., et. al., The Effect of Nuclear Radiation on Elastomeric and Plastic Components and Materials, Battelle Memorial Institute Radiation Effects Information Center Re- port REIC 21, 1961, and Addendum, 1964.

Material:	Polycarbonat	te		
EL	5E5	3.5E7	+10%,2E6	Van de Voorde, M. and Restat, C., Selection Guide to Organic Mater- ials for Nuclear Engineering, European Organization for Nuclear Research Report No. CERN 72-7, 1972, p. 49.
EL			+0%, 7E6	Ibid.
EL			-5%, 1E7	Ibid.
EL			-20%, 3E7	Ibid.
EL		·	-40%. 5E7	Ibid.

-50%, 7E7

Ibid.

Ibid.

Ibid.

Ibid,

Ibid.

CLASS:

**INSULATOR** 

Material: Polycarbonate - film

Property		Radiation Data	<b>1</b>	Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ (\text{-CDR} & (\text{rads}) \\ \text{hr} \end{pmatrix}$	1
TS .	2E6	1.5E8	+5%, 4E6	Van de Boorde, M. H., and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, European Organization for Nuclear Research, CERN 72-7, May 17, 1972, p. 49.
TS		·	+10%, 1E7	Ibid.
TS			+5%, 2.5E7	Ibid.
TS			+0%, 4E7	Ibid.
TS			-5%, 6E7	Ibid.
TS			-10%, 8E7	Ibid.
TS			-15%, 1E8	Ibid.
TS			-20%, 1.2E8	Ibid.

Material:	Polycarbonat	e - Macrofol		
TS			<b>-20%,</b> >1E8	Parkinson, W.W., Nucl. Engr. and Design, Vol. 17, 1971, p. 253.
EL			-20%, 7E7	Ibid.

CLASS: INSULATOR

Material: Polychlorotrifluoroethylene, Kel-F

material:	•			
Property		Radiation Data		Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR(rads)	$\begin{pmatrix} CD & (rads) \\ CDR & (rads) \\ hr \end{pmatrix}$	
TS	<b>4</b> E7	<b>7</b> E7	-40%,1E8	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 47.
TS			-50%,1.5E8	Ibid.
TS			-75%,2E8	Ibid.
EL	4E6	<b>2</b> E7	-15%,1E7	Ibid.
EL			-50%,4E7	Ibid.
EL			-75%,7E7	Ibid.
EM	4E6	+1E8	+5%,1E7	Ibid.
SS	4E6	1.5E8	+10%,4E7	Ibid.
SS			-2%,1E8	Ibid.
SS			-50%,2E8	Ibid.
SS			-75%,3E8	Ibid.
	•			
		,		
			·	
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Material: Property	•	rifluoroethyle Radiation Data	Other Information*	
 rroper cy	LTD (rads) (LTDR (rads) hr)	25CD (rads)		Other Information
EL			-47%,2E7	(C)/Kamen, R. E., Rad- iation Effects on HS- 350 Materials, Vol. I, Natural Space Radiation, Report 74-87, Hughes Air- craft Co., Apri, 1974, p. 6-12.
IS	,	•	-16%,2E7	Ibid.
TS	<b>4E7</b>	9E7	-50%,1.2E8	Goetzel, C.G., and Singletary, J. B., Space Materials Hand-book, Lockheed Missiles and Space Corp., January 1962, p. 335.
EL	4E6	2E7	-50%,4.5E7	Ibid.
TS			-20%,1.5E7	Parkinson, W. W., Nucl. Engr. and Design, Vol. 17, 1971, p. 255.
EL			-20%,1.4E6	Ibid.
HD			-20%,1.4E6	Ibid.

Material: Polychlorotrifluor oethylene

	Purychiloroti	rilluoroethy	rene	
Property		Radiation Data	<u>l</u>	Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ (\text{-CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	4
SS	1.2E6			Kircher, J. F. and Bowman, R. E., (ed), Effects of Radiation on Materials and Components, Reinhold Publ. Corp., 1964.
EL			-50%,1E7	Bolt, R. O. and Carroll, J. G., Radiation Effects on Organic Materials, Academic Press, 1963.
EL			-47%,2.4E7	Hanks, C. L. and Hamman, D. J., Electri- cal Insulating Mater- ials and Capacitors, Radiation Effects Design Handbook, Section 3, NASA CR-1787, 1971.
TS	<b>&gt;</b> 2.4E7	1		Ibid.

Material: Polyester, carbon filled

		, 00:0011	
₩C	<b>≯2.8E</b> 10		P, 480 Kev/In Vac./ Bouquet, F. L., and Phillips, A., Radia- tion Test of Mater- ials for Galileo Space- craft, JPL Report D380, November 18, 1982, p.15.

CLASS:	INSULATOR	

<u></u> -	INSULATOR			
Material:	Polyester,	cast-Selectro	n 5038	
Property	Radiation Data			Other Information*
	LTD (rads) (LTDR (rads) hr)	$\binom{25CD (rads)}{\binom{25CDR}{hr}}$	$\begin{pmatrix} \text{CD (rads)} \\ \left( \frac{\text{CDR}}{\text{hr}} \right) \end{pmatrix}$	<b>)</b>
TS -			-20%, 4E9	Parkinson, W.W., and Sisman, O., The Use of Plastics and Elastomers in Nuclear Radiation, Nuclear Engineering and Design, Vol. 17, 1971, p. 257.
TS			-50%, 5E9	Ibid.
TS			-90%, 7E9	Ibid.
EL			-20%, 8E6	Ibid.
EL			-50%, 8E6	Ibid.
EL			-90%, 1E9	Ibid.
HD			-20%, 9E7	Ibid.
HD	·		-50%, 1E9	Ibid.
HD _			-90%, 6E9	Ibid.
•			!	

Material: Polyester, flexible

material: Polyester, Tlexible					
Property		Radiation Dat		Other Information*	
	LTD (rads) (LTDR (rads) hr)		$\binom{\text{CD}}{-\text{CDR}} \left( \frac{\text{rads}}{\text{hr}} \right)$		
TS	<b>5</b> E5	2.8E9	+10%,1E6	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72- 7, May 17, 1972, p.73.	
TS			+100%,3.5E6	Ibid.	
TS	,		+200%,6E6	Ibid.	
TS			+260%,1E7	Ibid.	
TS			+300%,2E7	Ibid.	
TS	·		+325%,5E7	Ibid.	
TS			+300%,1.8E8	Ibid.	
TS			+50%,1E9	Ibid.	
TS			-50%,3E9	Ibid.	
EL	5E5	5E6	-5%,1E6	Ibid.	
EL			-50%,3E7	Ibid.	
EL			-75%,1E8	Ibid.	
EM	5E5	+25%,1.1E6	+100%,2.5E6	Ibid.	
EM			+200%,4E6	Ibid.	
EM			+300%,5E6	Ibid.	
EM		•	+360%,1E7	Ibid.	
EM			+400%,2.3E7	Ibid.	
EM			+450%,1E9	Ibid.	
	)				

Material: Polyester, flexible

Property	<b>F</b>	Radiation Data	) ·	Other Information*
	LTD (rads) $\frac{\text{LTDR}}{\text{hr}}$	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ (\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	
SS	<b>5E</b> 5	2.5E9	+10%,1E6	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 73.
<b>\$</b> S			+100%,5E6	Ibid.
SS			+120%,3E7	Ibid.
SS			+100%,1E8	Ibid.
SS			+50%,1E9	Ibid.
SS			-50%,3E9	Ibid.
SS			-75%,3.5E9	Ibid.

Material: Polyester, glass reinforced

TS	8.3E8		Goetzel, C.G., and Singletary, J. B., Space Materials Hand- book, Lockheed Missiles and Space Corp., Janu- ary, 1962, p. 423.
TS		-3.2%,2.5E9	Ibid.
TS		+0.6%,8.3E9	Ibid.
TS	<b>≯</b> 4E8		Kitemaur, R. L., et al, Irradiation Crosslink-ing of Polyethylene: Relative Efficiency in Crystalline and Amorphous States, Jour. of Applied Polymer Science: Polymer Letters, Vol. 1, p. 511, 1964.

Material: Polyester, Hytrel; Supplier; Dolder

			bile, pola	
Property		Radiation Dat		Other Information*
	LTD (rads) (LTDR (rads) hr)		$\begin{pmatrix} CD & (rads) \\ (-CDR & (rads) \\ hr \end{pmatrix}$	4
EL	1.5E7	3.4E7	-29%,4.4E7	G/In Air/Flame Retard-
-	(1E7)	(1E7)	(1E7)	ent, Dolder/Schonbacher, H., and Stolarz-Izycka, A., Compilation of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979, p. 87.
EL		·	-61%,9.6E7	Ibid.
·			(1E7)	·
EL			-90%,2.0E8	Ibid.
			(1E7)	
EL			-97%,5.0E8 (1E7)	Ibid.
HD	1.5E7		-11%,6.9E7	Ibid.
	(1E7)		(1E7)	
HD .			-23%,5.0E8 (1E7)	Ibid.
TS	1E7	1.4E7	-58%,2.8E7	Ibid.
	(1E7)	(1E7)	(1E7)	
TS			-78%,6.9E7 (1E7)	Ibid.
TS			-82%,1.6E8 (1E7)	Ibid.
TS		·	-83%,5.0E8 (1E7)	Ibid.

Material: Material: Polyester, mineral filled

Material:	material:	rolyester, "	imeral filled	
Property		Radiation Date		Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} \text{CD (rads)} \\ \text{CDR (} \frac{\text{rads}}{\text{hr}} \end{pmatrix}$	
TS	7.9E7	3.5E9 -	·	Kircher, J.F., and Bowman, R. E. (ed.), Effects of Radiation on Materials and Com- ponents, Reinhold Publ. Corp., 1964.
TS	<b>5E8</b>	<b>4E</b> 9 -	-5%,1E9	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 73.
TS			-30%,5E9	Ibid.
EL	5E8	<b>4E</b> 9	-5% <b>.</b> 1E9	Ibid.
EL			-30%,5E9	Ibid.
EM	5E8	<b>4E9</b>	-5%.1E9	Ibid.
EM			-30%.5E9	Ibid.
SS	5E8	4E9	-5%.1E9	Ibid.
SS			-30%.5E9	Ibid.
			•	

Material:	Polyester-	Alkyd mineral	filled,Plaskon
			1 1 1 1 6 4 41 1 43 4011

Dunnand	• • • • • • • • • • • • • • • • • • • •	-	i i i i eu , r i u s ki	
Property		Radiation Dat		Other Information*
	LTD (rads) (LTDR (rads) hr)	$ \begin{pmatrix} 25CD & (rads) \\ (25CDR & (rads) \\ hr \end{pmatrix} $	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ -\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	4
TS			-20% <b>,</b> 2E9	Parkinson, W. W., Nucl. Engr. and De- sign, Vol. 17, 1971, p. 257.
EL			-20%,2E9	Ibid.
HD			-20%,2E9	Ibid.
SS	7.9E7	3.5E9		King, R.W., et al., The Effect of Nuclear Radiation on Elasto- meric and Plastic Com- ponents and Materials, Battelle Memorial In- stitute Radiation Effects Information Center Report REIC 21, 1961, and Adden- dum, 1964.
IS	7.9E7	Į.		Ibid.

Material: Polyester. resin

EL	1E5-1E6		Kircher, J. F. and Bowman, R.E., (ed.). Effects of Radiation on Materials and Components, Reinhold Publ. Corp., 1964.
EL		-20%.8E6	No filler. Selectron 5038/Ibid.
EL		-50% <b>.</b> 1E9	Ibid.
	·		

CLASS: INSULATOR Material: Polyethylen

	Polyethylen	_		
Property	7.55	Radiation Dat		Other Information*
	LTD (rads) (LTDR (rads)		$\begin{array}{c} \text{CD} & (\text{rads}) \\ \text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{array}$	
TS	1E8 (2E5)	4.5E6 (2E5)		In Air/Makhlis, F. A., Radiation Physics and Chemistry of Polymers, Wiley, New York, 1975, p. 152.
TS -			-10%,1E6 (2E5)	Ibid.
TS			-40%, 1E7 (2E5)	Ibid.
TS	·		-10%,0.5E6 (4.35E3)	Ibid.
TS		1.8E6 (4.35E3)	-20%,1.3E6 (4.35E3)	Ibid.
TS			-50%,3.5E6 (4.35E3)	Ibid.
TS		·	-10%,0.4E6 (3.8E2)	Ibid.
TS ·		1E6 (3.8E2)	-20%,0.8E6 (3.8E2)	Ïbid.
TS			-50%,2.2E6 (3.8E2)	Ibid.
TS	<b>2E</b> 7		-50% <b>,</b> 9E7	Rads(C)/Nuclear and Space Radiation Effects on Materials, NASA SP-8053 June 1970, p.31
EL	3.8E5	·		Chapiro, A., Radia- tion Chemistry of Polymeric Systems, Vol. XV, Interscience Publ., 1962.

CLASS: INSULATOR

Material? Polyethylene; Supplier; Kabel-Metall

Proposity Padiation Date Ottow Information					
Property	LTD (rads)	Radiation Date 25CD (rads)	_CD (rads)	Other Information*	
	(LTDR (rads)		$\left(\frac{\text{CDR}}{\text{hr}}\left(\frac{\text{rads}}{\text{hr}}\right)\right)$		
EL	1E7	2.7E8	1	G/In Air/Lupolen/	
	(1E7)	(1E7)	(1E7)	Schonbacher, H., and Stolarz-Izycka, A.,	
			·	Compilation of Rad- iation Damage Test	
	}			Data, Part I, CERN- 79-04,18 June 1979,	
	·			p.111.	
EL			-80%,1E8	Ibid.	
			(1E7)		
EL			-94%,2E8	Ibid.	
			(1E7)		
EL			-98%,5E8	Ibid.	
			(1E7)	·	
TS	1E7	3E8	+33%,3.4E7	Ibid.	
	(1E7)	(1E7)	(1E7)		
TS			-15%,1.4E8	Ibid.	
			(1E7)		
TS			-27%,5E8	Ibid	
		·	(1E7)		
			·		
		;	·		
			`		
	j				

Material: Polyethylene Supplier: Kabel-Metall

na ceriai.				
Property		Radiation Dat		Other Information*
	LTD (rads) (LTDR (rads)	25CD (rads) (25CDR( <u>rads</u> )	$\begin{array}{c} \text{CD} & (\text{rads}) \\ \text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{array}$	
EL	1 E 7	4E7	-31%,5 OE7	G/In Air/Stabilized/Schon-
	(1E7)	(187)	(1E7)	bacher, H., and Stolarz- Izycka, A., Compilation of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979, p. 111.
EL			-73%,9.6E7	Ibid.
	ľ		(1E7)	
EL	ł	ĺ	-93%,2.0E8	Ibid.
			(1E7)	
EL			-98%,4.9E8	Ibid.
	ĺ		(1E7)	{
TS	2E7	5.5E7	-13%,3.7E7	Ibid.
	(1E7)	(1E7)	(1E7)	
TS			-46%,1.0E8	Ibid.
			(1E7)	
TS			-43%,5.0E8	Ibid.
			(1E7)	
EL	3.8E5		,	Chapiro, A., Radia- tion Chemistry of Polymeric Systems, Vol. XV, Interscience Publ., 1962.
		·	·	

Material: Polyethylene - cable

material: Polyethylene - Cable				
Property		Radiation Dat	.a	Other Information*
	LTD (rads (LTDR (rads) hr)	25CD (rads) 25CDR( <u>rads</u> )	$\begin{array}{c} CD & (rads) \\ CDR & (rads) \\ hr \end{array}$	
TS	<b>5</b> E5	8E7	+15%,1E7	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 50.
TS			+1%,3E7	Ibid.
EL	· 2E6	2.5E7	-15%,1E7	Ibid.
EL			-50%,4E7	Ibid.
EL	·		-75%,7E7	Ibid.
EM	2E7	· +1.5E8	+10%,6E7	Ibid.
EM			+20%,1E8	Ibid.
\$\$	2E7	+5E7	+10%,1E7	Ibid.
	ļ .			

Material: Polyethylene, chlorosulfonated

Property		Radiation Date	A	Other Information*
.TS	LTD (rads) (LTDR (rads)	25CD (rads) (25CDR(rads) hr 6E7 (1.5E3)	_CD (rads) (_CDR (rads)) (-2%,4.5E6 (1.5E3)	G/In Air/Gillen, K. T., and Clough, R. L., Occurrence and Implication of Radiation Dose-Rate Effects in Material Aging Studies, NUREG/CR-2157, SAND80-1796RV, August 1981, p. 16.
TS	ł		-8%,1.3E7	Ibid.
TS	-		(1.5E3) -15%,3E7 (1.5E3)	Ibid.
TS			-20%,4.8E7	Ibid.
EL		3E7 (1.5E3)	(1.5E3) -3%,4.5E6 (1.5E3)	Ibid.
EL			-5%,1.3E7	Ibid.
· EL		·	(1.5E3) -40%,4.8E7 (1.5E3)	Ibid.
		·		
•	<i>*</i>			·

Material: Polyethylene, chlorosulfonated

Property		Radiation Data		Other Information*
TS	LTD (rads) (LTDR (rads))	25CD (rads) (25CDR( <u>rads</u> )	CD (rads) (CDR (rads)) (-1%,1.8E7 (4.9E4)	G/In Air/Gillen, K. T., and Clough, R. L., Occurrence and Implication of Radiation Dose-Rate Effects in Materia Aging Studies, NUREG/CR-2157 SAND80-1796RV, August 1981, p. 16.
TS			-4%,4.5E7	Ibid.
	ŀ		(4.9E4)	
TS			-6%,7.2E7	Ibid.
			(4.9E4)	
TS			-9%,9.5E7	Ibid.
			(4.9E4)	
TS			-12%,1.3E8	Ibid.
			(4.9E4)	
EL		4.5E7	-5%,1.8E7	Ibid.
		(4.9E4)	(4.9E4)	
EL			-37%,7E7	Ibid.
			(4.9E4)	
EL			-69%,1.3E8	Ibid.
			(4.9E4)	
		İ		

LTD (rads) 25CD (rads) CD (rads) (LTDR (rads) (25CDR(rads)) (CDR (rads) hr)) +5%,1.8E7    +5%,1.8E7    (9.6E5)    G/In Air/Gillen, K. T., and Clough, R. L., Occurrence Implication of Radiation Rate Effects in Material Studies, NUREG/CR-2157, SA	Material: Property		e.chlorosulfor Radiation Data		Other Information*
(9.6E5)  Clough, R. L., Occurrence Implication of Radiation Rate Effects in Material Studies, NUREG/CR-2157, Si 1796 RV, August 1981, p.  H8%,4.5E7 (9.6E5)  TS  +10%,7.2E7 (9.6E5)  TS  +7%,9.5E7 (9.6E5)  FS  4.5E7 (9.6E5)  EL  4.5E7 (9.6E5)  -39%,7.2E7 (9.6E5)  -39%,7.2E7 (9.6E5)  -50%,9.5E7 (9.6E5)  -72%,1.7E8 Ibid.		LTD (rads)	25CD (rads)	_CD (rads)	
(9.6E5) +10%,7.2E7   Ibid. (9.6E5)  TS +7%,9.5E7   Ibid. (9.6E5) +2%,1.7E8   Ibid. (9.6E5)  EL  4.5E7   -10%,1.8E7   Ibid. (9.6E5) -39%,7.2E7   Ibid. (9.6E5) -50%,9.5E7   Ibid. (9.6E5) -72%,1.7E8   Ibid.	ŢS				G/In Air/Gillen, K. T., and Clough, R. L., Occurrence and Implication of Radiation Dose-Rate Effects in Material Aging Studies, NUREG/CR-2157, SAND80 1796 RV, August 1981, p. 16.
TS	TS	-		+8%,4.5E7	Ibid.
(9.6E5) +7%,9.5E7   Ibid. (9.6E5)  TS +2%,1.7E8   Ibid. (9.6E5)  EL  4.5E7   -10%,1.8E7   Ibid. (9.6E5) -39%,7.2E7   Ibid. (9.6E5) -50%,9.5E7   Ibid. (9.6E5) -72%,1.7E8   Ibid.		l		(9.6E5)	
TS	TS		,	+10%,7.2E7	Ibid.
(9.6E5) +2%,1.7E8   Ibid. (9.6E5)  EL  4.5E7   -10%,1.8E7   Ibid. (9.6E5) -39%,7.2E7   Ibid. (9.6E5) -50%,9.5E7   Ibid. (9.6E5) -72%,1.7E8   Ibid.				(9.6E5)	
+2%,1.7E8   Ibid. (9.6E5)  EL	TS			+7%,9.5E7	Ibid.
(9.6E5) 4.5E7 (9.6E5) (9.6E5) (9.6E5) -39%,7.2E7 (9.6E5) -50%,9.5E7 (9.6E5) -72%,1.7E8 Ibid.				(9.6E5)	
4.5E7 -10%,1.8E7 Ibid. (9.6E5) (9.6E5) -39%,7.2E7 Ibid. (9.6E5) -50%,9.5E7 Ibid. (9.6E5) -72%,1.7E8 Ibid.	TS			+2%,1.7E8	Ibid.
(9.6E5) (9.6E5) -39%,7.2E7 Ibid. (9.6E5) -50%,9.5E7 Ibid. (9.6E5) -72%,1.7E8 Ibid.				(9.6E5)	
-39%,7.2E7 Ibid. (9.6E5) -50%,9.5E7 Ibid. (9.6E5) -72%,1.7E8 Ibid.	EL		4.5E7	-10%,1.8E7	Ibid.
(9.6E5) -50%,9.5E7 Ibid. (9.6E5) -72%,1.7E8 Ibid.			(9. <b>6</b> E5)	(9.6E5)	
-50%,9.5E7 Ibid. (9.6E5) -72%,1.7E8 Ibid.				-39%,7.2E7	Ibid.
(9.6E5) -72%,1.7E8 Ibid.				(9.6E5)	
-72%,1.7E8 Ibid.				-50%,9.5E7	Ibid.
				(9.6E5)	
(9.6E5)				-72%,1.7E8	Ibid.
				(9.6E5)	
					·

Material: Polyethylene, chlorosul fonated, Hypalon

MEGELIET:	roryeony ren			
Property		Radiation Date		Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> )	$\begin{pmatrix} CD & (rads) \\ (-CDR & (rads) \\ hr \end{pmatrix}$	
EL		1.5E7	-64%,4.8E7	G/In Air/Schonbacher, H., and Stolarz-Izycka, A., Compilation
		(1E7) ~	(1E7)	of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979, p. 79.
EL			-89%,1.6E8	Ibid.
	·		(1E7)	
EL		`	-96%,5.1E8	Ibid.
			(1E7)	·
TS		4.8E7	-26%,4.9E7	Ibid.
		(1E7)	(1E7)	
TS			-36%,1.5E8	Ibid.
			(1E7)	
TS			-35%,5.1E8	Ibid.
			(1E7)	
EL	< 5E5		-11%,5E5	Blodgett,R.B., and Fisher,R.G.,IEEE Trans. Power Apparatus and Systems, Vol.PAS -88,No.5,p.529,1969
			-60%,1.5E7	Ibid.
			-	

Material: Polyethylene, chlorosul fonated, Hypalon

material:	Polyethyle	ene,chiorosulf	fonated.Hypalor	
Property		Radiation Day		Other Information*
	LTD (rads (LTDR (rads hr	25CD (rads) 25CDR(rads)	$\begin{array}{c} CD & (rads) \\ CDR & (rads) \\ CDR & (rads) \end{array}$	)
EL		2E7	-57%,5.0E7	G/In Air/Schonbacher, H., and Stolarz-Izycka, A.,
	·	(1E7)	(1E7)	Compilation of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979, p. 79.
EL			-85%,1.6E8	Ibid.
			(1E7)	
EL		l	-97%,5.1E8	Ibid.
TS		4 257	(1E7)	1
13		4.2E7 (1E7)	-10%,3.9E7 (1E7)	Ibid.
TS		(127)	-40%,1.3E8	Ibid.
			(1E7)	
TS			-71%,5.3E8	Ibid.
			(1E7)	
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OF POOR QUALITY

CLASS: INSULATOR

Property		Radiation Data		Other Information*
TS	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> )) 2E8	CD (rads) (CDR ( <u>rads</u> )) -20%,1.1E8	Van de Voorde, M. H., and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 82.
TS			-40%,4E8	Ibid.
TS	-		-60%,5.5E8	Ibid.
EL	1E7	2.5E7	-10%,1.5E7	Ibid.
EL			-30%,3E7	Ibid.
EL			-50%,5E7	Ibid
EL			-60%,8E7	Ibid.
EL			-80%,3E8	Ibid.
EL			-90%,6E8	Ibid.
HD		+1.5E8	+10%,3E7	Ibid.
HD			+20%,6E7	Ibid.
HD			+30%,6E8	Ibid.
TS			-20% <b>,</b> 1.5E8	Parkinson,W.W., Nucl.Engr. and Deign Vol.17,1971,p.273.
EL			-20%,5E6	Ibid.

materia:	Polyethylene,	chiorosultonated, hyparon	3-4
EL		-50%,1E8	In Helium, Bopp, C.D., and Sisman, O., Radia-Stability of Plastics and Elastomers, Nucl. Vol.13,, No. 3, July 1955, p. 28.

Material: Polyethylene, crosslinked

Property	Pulyethy	Dadiodia Bat	-	• • • • •
rroperty	LTD (rads)	Radiation Date 25CD (rads)		Other Information*
	(LTDR (rads)	$\binom{25\text{CDR}}{\text{hr}}$	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ -\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	
TS		1.5E7 (1E4)	-10%,5E6 (1E4)	In Oxygen Pressure, i kg/cm <sup>2</sup> /Machi, S., Radiation Degradation of Polymeric Materials Used in Nuclear Reactor, Radiat. Phys. Chem. Vol. 18, No. 1-2, 1981, p. 130.
TS			-43%,2.5E7 (1E4)	Ibid.
TS		·	-66%,3.3E7 (1E4)	Ibid.
EL		8E6 (1E4)	-12%,5E6 (1E4)	In Oxygen Pressure, 1 kg/cm <sup>2</sup> /Machi, S., Radiation Degradation of Polymeric Materials Used in Nuclear Reactor, Radiat. Phys. Chem. Vol. 18, No. 1-2, 1981, p. 130.
EL			-50%,1.3E7 (1E4)	Ibid.
EL			-75%,1.5E7 (1E4)	Ibid.
			٠,	
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Polyethylene, crosslinked Material: Other Information\* Radiation Data Property 25CD (rads) CD LTD (rads) (rads)  $\binom{25CDR}{\frac{rads}{hr}}$  $\left(\frac{\text{CDR}}{\text{hr}}\right)$ (LTDR (rads) In Oxygen Pressure, -10%,8E6 (1E5) 2.2E7 TS 5 kg/cm<sup>2</sup>/Machi, S., Radiation (1E5) Degradation of Polymeric Materials Used in Nuclear Reactor, Radiat. Phys. Chem. Vol. 18, No. 1-2, 1981, p. 130. -38%,3.5E7 Ibid. TS (1E5) -68%.4.5E7 Ibid. TS (1E5) Ibid. -72%.7.3E7 TS (1E5) In Oxygen Pressure,
5 kg/cm²/Machi, S., EL 2.5E7 -12%.1E7 (1E5) (1E5)Radiation Degradation of Polymeric Materials Used in Nuclear Reactor, Radiat. Phys. Chem. Vol. 18, No.1-2, 1981, p. 130. EL -50%,3.9E7 Ibid. (1E5) Ibid. -75%,5E7 EL (1E5)

Material: Polyethylene, crosslinked; Supplier; Pirelli

Material:	•		a; Supplier	; rireiii
Property		Radiation Date		Other Information*
	LTD (rads) (LTDR (rads) hr)	$ \begin{array}{c} 25CD (rads) \\ (25CDR(\frac{rads}{hr})) \end{array} $	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ -\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	•
EL		2.8E7 (1E7)	-53%,4.2E7 (1E7)	G/In Air/High Voltage Insulator/ Schonbacher, H., and Stolarz- Izycka, A., Compilation of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979, p. 216.
EL		!	-68%,1.1E8	Ibid.
			(1E7)	
EL			-88%,2.3E8	Ibid.
			(1E7)	
EL		,	-99% <b>,4.9</b> E8	Ibid.
			(1E7)	
TS		5E7	-35%,7.4E7	Ibid.
		(1E7)	(1E7)	
TS			-69%,5.0E7	Ibid.
		-	(1E7)	
	·			
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Material: Polyethylene, crosslinked

material:	rolyeun ten		-	
Property		Radiation Date		Other Information*
	LTD (rads) (LTDR (rads)	25CD (rads) (25CDR( <u>rads</u> )	$\begin{pmatrix} CD & (rads) \\ CDR & (rads) \\ hr \end{pmatrix}$	•
EL		3.2E7 (1E7)	-35%,4.8E7 (1E7)	G/In Air/Low Voltage Insulator/ Schonbacher, H., and Stolarz- Izycka, A., Compilation of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979, p. 215.
EL			-82%,2.0E8	Ibid.
			(1E7) .	
EL			-99%,5.0E8	Ibid.
			(1E7)	
HD	5E7			Ibid.
	(1E7)			
HD			-5%,5.3E8	Ibid.
			(1E7)	
TS		1.3E8	-18%,8.0E7	Ibid.
¢		(1E7)	(1E7)	
TS .			-64%,4.9E8	Ibid.
			(1E7)	
			,	
	·	<i>,</i>		<b>!</b>
				<b>]</b> .
		<u> </u>		I

		e, crosslinked		Other Information*
Property	LTD (rads) (LTDR ( <u>rads</u> )	25CD (rads) (25CDR(rads) hr)	$\binom{\text{CD}}{\binom{\text{rads}}{\text{hr}}}$	
TS	·	2.8E7 (1E6)	-10%, 1E7 (1E6)	In Oxygen Pressure, 5 Kg/cm²/Machi, S., Radiation Degradation of Polymeric Materials Used in Nuclear Reactor, Radiat. Phys. Chem. Vol. 18, No. 1-2, 1981, p. 130.
TS		·	-40%, 4.8E7 (1E6)	Ibid.
TS			-65%, 7.5E7 (1E6)	Ibid.
TS			-75%, 1E8 (1E6)	Ibid.
EL		2.5E7 (1E5)	-12%, 1E7 (1E5)	Ibid.
EL			-50%, 3.9E7 (1E5)	Ibid.
EL			-75%, 5E7 (1E5)	Ibid.
Material:	Polyethylen	e, Estane		
Unstated	1E9			Baur, J. F., Radiation Limit for Diagnostic Components, General Atomic Co., July, 1981, p. 7.
Material:	Polyethyle	ne, low densi		
TC .		+1.3E9		20 <sup>0</sup> C/Makhlis, F. A., Rad. Phys. and Chem. of Polymers, Wiley, 1975, p. 242.
TC .		·	+40%, 2E9	150°C/Ibid.
TC		1.6E9	-10%, 3E8	20 <sup>0</sup> C/Ibid.
TC			-40%, 3E9	20 <sup>0</sup> C/Ibid.

Material: Polyethylene, low density

Material: Polyethylene, low density					
Property		<u>ladiation Data</u>		Other Information*	
	LTD $(rads)$ $(LTDR (rads)$ $hr$	25CD (rads) (25CDR( <u>rads</u> ))	$\binom{CD}{CDR} \binom{rads}{hr}$		
TS	1.9E7	8E9		Goetzel, C. G., and Singletary, J. B., Space Materials Handbook, Lockheed Missiles and Space Corp., January 1962, p. 335.	
EL	2.3E7	9.3E7	- <b>50%,18E</b> 8	Ibid.	
тс		+1.3E9		20 <sup>0</sup> C/Makhlis, F. A., Rad. Phys. and Chem. of Polymers, Wiley, 1975, p. 242.	
TC			+30%, 1E9	150 <sup>0</sup> C/Ibid.	
TC			+40%, 2E9	150 <sup>0</sup> C/Ibid.	
TC		1.6E9	-10%, 3E8	20 <sup>0</sup> C/Ibid.	
TC			-40%, 3E9	20 <sup>0</sup> C/Ibid.	
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CLASS:

**INSULATOR** 

Material:

Polyethylene, low density, Alathon

Property	Radiation Dat	a	Other Information*
	(LTD (rads) 25CD (rads) (LTDR (rads) (25CDR(rads) hr)	$\begin{array}{c} \text{CD} & (\text{rads}) \\ \left(\frac{\text{CDR}}{\text{hr}}\right) \end{array}$	•
TS		<b>-20%,</b> >1E9	Parkinson, W. W., Nuclear Engr. and Design, Vol. 17, 1971, p. 251.
EL		-20%, 7E7	Ibid.
IS		-20%, 8E7	Ibid.

Material: Polyethylene, Low density, Alathon 3

TS		-20%, 5E7	Parkinson, W. W., Nuclear Engr. and Design, Vol. 17, 1971, p. 25.
EL		-20%, 1.5E7	Ibid.

Material: Polyethylene, low density, Alathon 10

	•			
TS		-20%,	7E8	Ibid.
EL		-20%,	2E7	Ibid.

Material: Polyethylene, low density, Irrathene 101

		_	•	
TS			-20%, 1E7	Ibid.
EL			-20%, 2E7	Ibid.
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CLASS: INSULATOR

Material: Polyethylene high density

Material:	Polyethyle	ne, high dens	ity	
Property		Radiation Dat		Other Information*
	LTD (rads (LTDR (rads hr)	) 25CD (rads)	CD (rads)	•
TS	3E6		+10%, 9E7	Goetzel, C.G. and Singletary, J.B., Space Materials Hand- book, Lockheed Missiles and Space Corp., Jan- uary 1962, p. 335.
EL	3E6	3.2E7	Ì	Ibid.
EL			-20%, 2E7	Super Dylan/Parkinson, W.W., and Sisman, O., The Use of Plastics and Elastomers in Nuclear Radiation, Nuclear Engineering and Design, Vol. 17, 1971, p. 251.
EL			-50%, 3E7	Ibid.
EL			-90%, 5E8	Ibid.
TS			-20%, >1E9	Ibid.
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CLASS:

**INSULATOR** 

Material: Polyethylene, high density, Marlex-50

Property		Radiation Data	<u> </u>	Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ -\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	
TS			-20%, 7E6	Parkinson, W.W., Nucl. Engr. and Design, Vol. 17, 1971, p. 251.
TS			-50%, 2E7	Ibid.
EL	-		-20%, 1.5E6	Ibid.
EL			-50%, 2.5E6	Ibid.
EL			-90%, 5E6	Ibid.

Material:	Polyethyle	ne oxide		
TS	5E4	4E9	+2%, 1E5	Van de Voorde, M.H., and Restat, C., Selec- tion Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 52.
TS			+5%, 1E6	Ibid.
TS			+6%, 1E7	Ibid.
TS.			+5%, 1E8	Ibid.
TS			+1%, 7E8	Ibid,
TS			-2%, 1E9	Ibid.
· TS			-50%, 8E9	Ibid.
				·
				. '

Material:	Polyethylene, terephthalate	
Property	Radiation Data	Other Information*
	LTD (rads) 25CD (rads) CD (rads)	
	(LTDR (rads)) (25CDR/rads)) CDR (rads))	

Property		Radiation Dat		Other Information*
	LTD (rads)	25CD (rads)	_CD (rads)	
	(LTDR (rads)	$\left(\frac{25\text{CDR}\left(\frac{\text{rads}}{\text{hr}}\right)}{}\right)$	$\left(\frac{\text{CDR}}{\text{hr}}\left(\frac{\text{rads}}{\text{hr}}\right)\right)$	<b>A</b>
.TS			-20%, 8E7	Parkinson, W. W., Nuclear Engr. and Design, Vol. 17, 1971, p. 253.
TS			-20%, 3E8	Ibid.
TS			-50%, 7E8	Ibid.
EL			-20%, 3E7	Ibid.
EL			-20%, 2E8	Ibid.
EL			-50%, 4E8	Ibid.
EL	4.4E6		-50%, 3E8	Bolt, R. O., and Carroll, J. G., Radiation Effects on Organic Materials, Academic Press, 1963.
TS	<b>4.4</b> E6	-	-50%, 6E8	Ibid.
			•	
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Material: Polyethylene terephthalate - film

Property		Radiation Dat	a	Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR(rads) hr	$ \begin{array}{c} \text{CD} & (\text{rads}) \\ \text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{array} $	
TS	4E7	2E8	<b>-50%,4</b> E8	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 52.
TS			-75%, <b>5</b> E8	Ibid.
EL	· 3E7	1.5E8	-20%,1E8	Ibid.
EL			-50%,2E8	Ibid.
EL			-75%,5E8	Ibid.
EL			-90%,1E9	Ibid.
EM	1E8	<b>3</b> E8	-50%,7E8	Ibid.

Material: Polyethylene terephthalate - Mylar film

TS	2.5E7	1E8	-40%,2.4E8	G/In Vacuum/Proc. of Charged Particle Radiation Effects, NASA-TM-X-67335, March 19, 1964,p.122.
TS			-46%,2.6E8	Ibid.
EL	1E7	1 E 8	+10%,0.75E7	Ibid.
EL			-40%,1.25E8	Ibid.
EL			-96%,1.5E8	Ibid.

Material: Polyformaldehyde - Delrin

Property	Radiation Dat	<b>a</b>	Other Information*
	LTD (rads) 25CD (rads) (LTDR (rads) (25CDR (rads) hr)	$\begin{pmatrix} CD & (rads) \\ CDR & (rads) \\ hr \end{pmatrix}$	•
TS		1	Parkinson, W. W., Nucl. Engr., and Design, Vol. 17, 1971, p. 252
EL		<b>-20%,</b> 1E6	Ibid.

Material: Polyimide

WC I	1 +6	.5%,1.6E15 P, protons-cm <sup>2</sup> /In
	1 1	Vacuum Plus 16
	1	Suns/Fogdall,L.B.
	1'	and Cannaday, S.S.,
į.	1	Simulation of Space
		Radiation Effects
I		on Polyimide Film
ŀ		Materials for High
	•	Temperature Appli-
ł	1 1	cations, Nov., 1977.

Material: Polyimide, Ciba Geigy, B-100

EL		6E10	-23%,5E10	P,1.3 Kev/In Vac./ Bouquet, F.L. and Koprowski,E.F., Jupiter Radiation Effects on Space- craft Materials, 19th IEEE Annual Conf. on Nucl. and Space Radiation Effects, Las Vegas, NV, July 21, 1982, p. 4.
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Material: Polyimide - film

Material:	Polyimide -	film		4
Property		Radiation Data		Other Information*
	LTD (rads) (LTDR ( <u>rads</u> ) hr)	$ \begin{pmatrix} 25CD & (rads) \\ (25CDR & (rads) \\ hr \end{pmatrix} $	$\begin{pmatrix} CD & (rads) \\ CDR & (rads) \\ hr \end{pmatrix}$	· 1
TS	1E7	+4E7	+50%, 1E8	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 74.
			+60%, 2E8	Ibid.
			+20%, 1E9	Ibid.
			+20%, 2E9	Ibid.
EL	1E7	3E8	-2%, 2E7	Ibid.
			-20%, 1E8	Ibid.
Material:	Polyimide -	H film	,	
EL	<b>4</b> E8		-50%, 3E9	Parkinson, W. W., and Kirkland, "The Effects of Radiation on Organic Polymers", Annual Progress Report 4229, 1967.
TS	1E7		>-50%, 1E9	Ibid.
EL			-20%, 1.5E9	Parkinson, W. W., Nuclear Engineering and Design, Vol. 17, 1971, p. 259.
TS			-20%, 3E9	Ibid.
TS			+10%, 6E8	G/In Vacuum/Proc. of Charged Particle Radiation Effects, NASA-TM-X-67335, March 19, 1964, p. 122.
TS		+1.2E9	+23%, 1E9	Ibid.
TS			+30%, 2E9	Ibid.
EL			+40%, 6E8	Ibid.
EL			+50%, 1E9	Ibid.
EL			+55%, 1.5E9	Est. Ibid.
EL			+47%. 2E9	Ibid,

Material: Polyimide - Kapton

Material:	Polyimide	•		·
Property		Radiation Dat		Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR(rads) hr	$\begin{pmatrix} CD & (rads) \\ -CDR & (\frac{rads}{hr}) \end{pmatrix}$	)
TS	1E8	1E9	-90%,2E10	(C)/In Air/Kamen, R.E., Radiation Effects on HS-350 Materials, Vol. I, Natural Space Radia- tion, Report 74-87, Hughes Aircraft Co., April, 1974, p. 6-12.
TS	2E9	·		(C)/Vacuum/Kamen, R.E., Radiation Effects on HS-350 Materials, Vol. I, Natural Space Radia- tion, Report 74-87, Hughes Aircraft Co., April, 1974, p.6-12.
EL	1 E8		-47%,1E9	(C)/In Air/Kamen, R.E., Radiation Effects on HS-350 Materials, Vol. I, Natural Space Radia- tion, Report 74-87, Hughes Aircraft Co., April, 1974,p. 6-12.
EL			-90%,2E10	Ibid, p. 6-13.
DE	<b>&gt;</b> 1 E9			1 KiloHertz/Ibid.
CL	5E9	·	,	Darkening, Ibid.
EL			-8%,5E10	P,1.3 Kev/In Vac./ Bouquet, F.L. and Koprowski, E.F., Jupiter Radiation Effects on Space- craft Materials, 19th IEEE Annual Conf. on Nucl. and Space Radia- tion Effects, Las Vegas, NV, July 21, 1982, p. 4.

Material:	Polyimide,	Upjohn	2080
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Property		Radiation Data	1	Other	Information*
		25CD (rads) (25CDR( <u>rads</u> )	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ -\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$		
EL	:		-23%,5E10	Bouqu Kopro Jupit Effect craft IEEE Nucl. tion Vegas	Rev/In Vac./ Let, F.L. and Let, F.L. and Let, F.L. and Let, F.L. and Let, F.L. and Let, F.L. and Let, F.L. and Let, F.L. and Let, F. Sandian L

Material: Polyimide, Vespel

WC	>2.8E10	·	P, 480 kev/In Vac./Bouquet, F. L. and Koprowski, E. F., Radiation Effects on Space-craft Materials for Jupiter and Near-Earth Orbiters, IEEE Trans. Nucl. Sci., Vol. NS-29, No. 6, December 1982, p. 1631.
EC	- 1E9 -		E,2 Mev/DuPont Vespel Design Handbook,1970, p.27.
TS	1E9 ·		Ibid.
EL	1E9		Ibid.
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INSULATOR

Material: Polymethyl methacrylate - Lucite					
Property		<u>a</u>	Other Information*		
,	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR(rads) hr	$\begin{array}{c} CD & (rads) \\ CDR & (\frac{rads}{hr}) \end{array}$	)	
TS			-20 <b>%,4</b> E6	Parkinson, W. W., Nucl. Engr. and Design, Vol. 17, 1971, p. 253	
EL			-20%,4E6	Ibid.	
HD			-20%,3E6	Ibid.	
US	1E6	1E7		Rads(C)/Notch Impact Test/Nuclear and Space Radiation Effects on Materials,NASA SP-8053, June 1970,p. 32.	
TS	5E6	1E7	-50%,3E7	Van de Voorde, M.H., Selection Guide, CERN 72-7, May 17, 1972, p. 43.	
EL	5E6	1E7	-50%,3E7	Ibid.	
EM	1E7	•	+10%,4E7	Ibid.	
s's	1E7	3E7	-50%,5E7	Ibid.	

Material: Polyolefin, crosslinked

Material:	Polyoletin,	crossiinkea		
Property		Radiation Date		Other Information*
	LTD (rads) (LTDR (rads)	25CD (rads) (25CDR( <u>rads</u> )	$\begin{pmatrix} CD & (rads) \\ (CDR & (rads) \\ hr \end{pmatrix}$	•
TS	1E6		-9%,1.4E7	G/In Air/Gillen, K. T., and Clough, R. L., Occurrence
	(1.6E3)		(1.6E3)	and Implication of Radiation Dose-Rate Effects in Material Aging Studies, NUREG/CR-2157, SAND80-1796 RV, August 1981, p. 13.
TS			-12%,2.8E7	Ibid.
•			(1.6E3)	
TS			-15%,5.1E7	Ibid.
			(1.6E3)	
EL	1 E 6	1.5E7	-18%,1.4E7	Ibid.
	(1.6E3)	(1.6E3)	(1.6E3)	
EL			-60%,2.8E7	Ibid.
			(1.6E3)	
EL			-80%,5.1E7	Ibid.
	·		(1.6E3)	
		·		
			·	

\*Note: Order in which the information appears: Units, if different than rads, particle(s), k factor/Environmental data/Material data/References.

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Material: Polyolefin, crosslinked

Material:	POLYOLETIN,	crossiinked	•	
Property		Radiation Data		Other Information*
	LTD (rads) (LTDR (rads) hr)	$ \begin{array}{c} 25CD \text{ (rads)} \\ (25CDR \left(\frac{\text{rads}}{\text{hr}}\right) \end{array} $	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ \text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	
TS	1E6	1.1E8	-3%,2.7E7	G/InAir/Gillen, K. T., and Clough,R.L.
	(9.5E3)	(9.5E3)	(9.5E3)	Occurrence and Implication of Radiation Dose-Rate Effects in Material Aging Studies, NUREG/CR- 2157, SAND80-1796 RV, August, 1981, p. 13.
TS			-10%,5.4E7	Ibid.
			(9.5E3)	
TS		·	-30%,2E8	Ibid.
			(9.5E3)	
EL	1E6	2.5E7	-50%,4.5E7	Ibid.
·	(9.5E3)	(9.5E3)	(9.5E3)	
EL			-65%,5.4E7	Ibid.
			(9.5E3)	
EL		·	-97%,1.2E8	Ibid.
			(9.5E3)	
			•	
		· [		

Material: Polyolefin, crosslinked

Material:	Polyolefin	crosslinked,		
Property		Radiation Date		Other Information*
	LTD (rads) (LTDR (rads)	25CD (rads) (25CDR(rads))	$\left(\begin{array}{c} \text{CD} & (\text{rads}) \\ \left(\begin{array}{c} \text{CDR} & \left(\begin{array}{c} \text{rads} \\ \text{hr} \end{array}\right) \end{array}\right)$	
TS		+2E7	+40%,4E7	G/In Nitrogen/Gillen, K. T.,
		(8.1E4)	(8.1E4)	and Clough, R. L., Occurrence and Implications of Radiation Dose-Rate Effects in Material Aging Studies, NUREG/CR-2157, August 1981, p. 13.
TS			+46%,6.4E7	Ibid.
			(8.1E4)	
TS			+46%,1.1E8	Ibid.
			(8.1E4)	
TS			+41%,1.6E8	Ibid.
			(8.1E4)	
EL		2.0E7	-45%,2E7	Ibid.
		(8.1E4)	(8.1E4)	
EL			-64%, <b>5</b> E7	Ibid.
			(8.1E4)	

Material: Polyolefin, crosslinked

Material:	Polyolefin,	crosslinked		
Property		Radiation Data		Other Information*
	(LTDR (rads)	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ (\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	
TS	1E6	+1.5E8	+8%,3E7	G/In Nitrogen/ Gillen, K.T., and
•	(2.2E5)	(2.2E5)	(2.2E5)	Clough, R.L., Occurrence and Impli-
		<b>!</b>		cations of Radia- tion Dose-Rate Effects
	Ì		,	in Material Aging
				Studies, NUREG/CR- 2157, August, 1981, p. 13.
TS			+19%,5.2E7	Ibid.
			(2.2E5)	
TS		• .7	+21%,9.5E7	Ibid.
			(2.2E5)	
EL	1E6	1.8E7	-40%,3E7	Ibid.
	(2.2E5)	(2.2E5)	(2.2E5)	
EL			-65%,5.2E7	Ibid.
			(2.2E5)	
EL			-75%,9.5E7	Ibid.
			(2.2E5)	
EL			-85%,1.5E8	Ibid.
			(2.2E5)	
				·

Material: Polyolefin, crosslinkéd

material:	₹	crossinked		
Property		Radiation Date		Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR(rads))	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ -\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	
TS		+6.5E7	+18%,3E7	G/In Nitrogen/Gillen, K. T.,
		(1.2E6)	(1.2E6)	and Clough, R. L., Occurrence and Implications of Radiation Dose-Rate Effects in Material Aging Studies, NUREG/CR-2157, August 1981, p. 13.
TS			+21%,6E7	Ibid.
			(1.2E6)	
TS			+30%,9.6E7	Ibid.
			(1.2E6)	
TS			+28%,1.75E8	Ibid.
			(1.2E6)	
EL		2.5E7	-45%,3E7	Ibid.
		(1.2E6)	(1.2E6)	
EL			-65%,6E7	Ibid.
	<u>}</u>		(1.2E6)	
EL			-75%,9.6E7	Ibid.
			(1.2E6)	
EL			-88%,1.75E8	Ibid.
			(1.2E6)	
•				
·				
			:	
·				

CLASS:

INSULATOR

Material: Polyolefin, ionomer resin

material:	•	, lonomer rest		
Property		Radiation Dat		Other Information*
	LTD (rads) (LTDR (rads) hr)		$\begin{pmatrix} CD & (rads) \\ -CDR & (\frac{rads}{hr}) \end{pmatrix}$	
EL	1E6	4E7	-5%, 5E6	Van de Voorde, M., and Restat, C., Selection Guide to Organic Mater- ials for Nuclear Engin- eering, European Organization for Nuclear Research Report No. CERN 72-7 1972, p. 51.
EL		i.	-10%, 8E6	Ibid.
EL			-15%, 1.5E7	Ibid.
EL			-20%, 2.2E7	Ibid.
EL			-30%, 5E7	Ibid.
EL			-40%, 7E7	Ibid.
EL			-50%, 8E7	Ibid.
EL			-75%, 1.5E8	Ibid.
TS	1E6	<b>6</b> E8	+5%, 5E6	Ibid.
TS			+10%, 2E7	Ibid.
TS			+5%, 7E7	Ibid.
TS			+2%, 1E8	Ibid.
TS			-5%, 1.5E8	Ibid.
TS			-10%, 2E8	Ibid.
TS			-15%, 3E8	Ibid.
TS			-20%, 5E8	Ibid.
TS		1	-30%, 8E8	Ibid.
TS		- 1	-35%, 1E9	Ibid.

Material: Polyolefin, Radox 110, Supplier; Huber and Suhner

Material: Polyolefin, Radox 110, Supplier; Huber and Sunner						
1			Other Information*			
LTD (rads) (LTDR (rads) hr)			)			
<1E7 (1E7)	1.8E7 (1E7)	-67%,6.8E7 (1E7)	G/In Air/Radox 110/Schonbacher, H., and Stolarz-Izycka, A., Compilation of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979, p. 187.			
		-92%,5.4E8	Ibid.			
		(1E7)				
3E7		+7%,6.1E7	Ibid.			
(1E7)		(1E7)	·			
			Ibid.			
	• .:					
			Ibid.			
(1E7)						
		<b>j</b>	Ibid.			
		(1E/)				
	LTD (rads) (LTDR (rads) hr) <1E7 (1E7)	Radiation Dat  LTD (rads) 25CD (rads) (LTDR (rads) (25CDR(rads)/hr)  <1E7	Radiation Data   LTD (rads)   25CD (rads)   CD (rads)   CDR (rads)			

Material: Polyolefin, Radox 130; Supplier: Huber and Suhner

Property	Property Radiation Data Other Information*				
	LTD (rads (LTDR (rads hr	) 25CD (rade		Other Information*	
EL		1.5E7 (1E7)	-84%,8.1E7 (1E7)	G/In Air/Radox 130/Schonbacher, H., and Stolarz-Izycka, A.,	
		(127)	(127)	Compilation of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979, p. 187.	
EL			-94%,4.8E8	Ibid.	
	<u> </u>		(1E7)	•	
HD		+2.5E8	+19%,6.2E7	Ibid.	
		(1E7)	(1E7)		
HD			+39%,4.9E8	Ibid.	
			(1E7)		
TS		9E7	-9%,4.2E7	Ibid.	
-		(1E7)	(1E7)		
TS		<u>.</u>	-30%,1.1E8	Ibid.	
			(1E7)		
TS			-19%,4.8E8	Ibid.	
			(1E7)		
Material:	Polypheny	lene Oxide			
TS	1E5	<b>4E</b> 9	-50 <b>%,</b> 9E9	Van de Voorde, M., and Restat, C., Sel- ection Guide to Organic Materials for Nuclear Engin- eering, European Organization for Nuclear Research Report No. CERN	
				72-7, 1972,p.52.	

Material: Polypropylene.

material:	Polypropyle	ene .		•
Property		Radiation Dat	<u>a</u>	Other Information*
	LTD (rads)		$ \begin{array}{c} \text{CD (rads)} \\ \text{CDR } \left( \frac{\text{rads}}{\text{hr}} \right) \end{array} $	
TS	1E5	<b>5E6</b>	+5%,1E6	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 51.
TS		•	+1%,4E6	Ibid.
TS			-45%,1E7	Ibid.
TS			-75%,4E7	Ibid.
EL	1E 5	1E6	-50%,3E6	Ibid.
EL			-75%,5E6	Ibid.
EL	İ		-85%,1E7	Ibid.
DE			-3%,5E7	(C)/In Air/Kamen, R.E., Radiation Effects on HS-350 Materials, Vol.I, Natural Space Radia- tion, Report 74-87, Hughes Aircraft Co., April, 1974, p.6-13.
EC			<b>&lt;</b> +10%,5E7	Ibid.
IS			-7%,6E6	Rads(C)/Nuclear and Space Radiation on Materials, NASA SP-8053,June,1970, p. 32.
IS			-50%,1E7	Ibid.

Material: Polypropylene

Property	1	Radiation Data	3	Other Information*
TS	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR(rads) hr	CD (rads)	(C)/Vacuum/Kamen, R. E., Radiation Effects on HS-350 Materials, Vol. I, Natural
				Space Radiation, Report 74-87, Hughes Aircraft Co., April 1974, p. 6-13.
IS	<b>&gt;</b> 1E7		-75%,5E7	Ibid.

Material: Polypropylene - ethylene polyallmer

ŢS	1E6.	1E7	-40%,2E7	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 51.
TS		,	-50%,3E7	Ibid.
EL	1 E 6	3E6	-50%,5E6	Ibid.
EL			-80%,1E7	Ibid.
TS	1 E 6		-50%,4E7	King, R.W., et al, The Effect of Nuclear Radiation on Elastomeric and Plastic Components and Materials, Battelle Memorial Institute Radiation Effects Infmation Center Report REIC 21, 1961, and Addendum, 1964.
EL	1E6	·	-50%,7E6	Ibid,

Material: Polypropylene -Profax

Property		Radiation Data		Other Information*	
	(LTDR (rads)	25CD (rads) (25CDR( <u>rads</u> ))	CD CDR (	(rads) ( <u>rads</u> ))	
TS			-20%,	•	Parkinson,W.W., Nucl. Engr. and Design, Vol.17, p.252.
EL			-20%,	,7E5	Ibid.

Material: Polystyrene

EC	5E5	2E6	-60%,5E6	G/In Air/Bowen,J.
	(4E4)	(4E4)	(4E4)	H.Jr., and Rosato, D.V., Radiation,
				Chapter 7, Environ- mental Effects on
				Polymeric Materials, Vol. I,Environments,
				Interscience,N.Y., 1968,p.602.
Unstated		<b>&gt;</b> 5E9		Baur, J.F., Radiation Damage Limit for
				Diagnostic Components, General Atomic Co.,
				July, 1981.
TS	2E7		-50%,1E8	G/30 <sup>0</sup> F/ 3mm film/ Bowner, T.N.et al.,
	·			Degradation of Poly- styrene,Jour.
			,	Appl. Polymer Sci., Vol. 24, 1979, p. 425.
TS			-75%,2E8	Ibid.
-				

Material: Polystyrene, clear

Property	Radiation Date	a	Other Information*
	LTD (rads) 25CD (rads) (25CDR(rads) hr	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ -\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	
. TS		<b>-20%</b> , >1E10	Parkinson, W. W., Nucl. Engr. and Design, Vol. 17, 1971, p. 252
EL		<b>-20%,</b> >1E10	Ibid.
TS		-10%,5E9	Rads(C)/Nuclear and Space Radiation Effects on Materials,NASA SP-8053, June 1970, p.32.
EL		-10%,5E9	Ibid.

Material: Polystyrene, high impact

TS			-20% <b>&gt;</b> 7E9	Parkinson, W.W., Nucl. Engr. and Design, Vol. 17, 1971, p. 252.
EL			-20%,2E6	Ibid.
HD			-20%,2E6 -20%,5E6	Ibid.
Material:	Polysulfo	ne		~
VS			-11%,2E8 (5E5)	G/In Air,30°F/ Brown,J.R.,and O'Donnell, J.H., Effects of Gamma Radiation on Two Aromatic Polysulfones, J.Appl. Polymer Sci., Vol. 19,1975,p.405.
VS			-16%,4E8	Ibid.
			(5E5)	

Material: Polyurethane

	Property	rolyuretha	ane Radiation Dat	A	Other Information*
_	open cy	LTD (rads)	) 25CD (rads)	CD (rads)	
	CS		<b>4.</b> 3E7		Rads(c)/Nuclear and Space Radiation Effects on Materials, NASA SP-8053,June 1970 p.33.
	TS			-60%,1.2E7	Van de Voorde, M. H., and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 85.
	TS			-70%,3E7	Ibid.
	TS			-80%,1E8	Ibid.
	·TS	·		-90%,8E8	Ibid.
	EL	•	4E7	-10%,1.5E7	Ibid.
	EL			-40%,1E8	Ibid.
	EL			-75%,3.5E8	Ibid.
	HD		+2E8	+5%,1E7	Ibid.
	HD			+15%,4E7	Ibid.
	HD			+35%,5E8	Ibid.
	HD			+45%,1E9	Ibid.
		·			

Material: Polyurethane

Property		Radiation Date	1	Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR(rads))	$\begin{pmatrix} CD & (rads) \\ (CDR & (rads) \\ hr \end{pmatrix}$	
TS	1E7	•		King, R.W., et al, The Effect of Nuc-lear Radiation on Elastomeric and Plastic Components and Materials, Battelle Memorial Institute Radiation Effects Information Center Report REIC 21, 1961, and Addendum 1964.
TS		·	-59%,1.8E9	Ibid.
FS	>1E9			G,Rads(C)/Foam/ Nuclear and Space Radiation Effects on Materials, NASA SP-8053,June,1970, p. 30.

Material:	Polyure	ethane - Ge	nthane	
TS			-20%, 2E7	Parkinson, W.W., Nucl. Engr. and Design, Vol. 17, 1971, p. 273.
TS			-50%, 7E7	Ibid.
EL			-20%, 2E7	Ibid.
EL			-50%, 7E7	Ibid.

Material: Polyvinyl butyral

Material: Polyvinyl butyral								
Property		Radiation Date		Other Information*				
TŞ	<b>5E6</b>	<b>2</b> E7	-50%,6E7	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 54.				
TS			-75%,3E8	Ibid.				
EL	3E7	1E8	-50%,3E8	Ibid.				
EL			-75%,5E8	Ibid.				
TS			-20%,2.2E7	Parkinson, W. W., Nucl. Engr. and Design, Vol. 17, 1971, p. 252				
EL			-20%,1E8	Ibid.				
		·						

Material: Polyvinyl·carbazole

	nacerial. Polyvinyi Carbazole					
Property		Radiation Dat		Other Information*		
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR(rads) hr	$\begin{pmatrix} CD & (rads) \\ -CDR & (rads) \\ hr \end{pmatrix}$	•		
тѕ	<b>&gt;</b> 1 E9			Van de Voorde and Restat, C., Selec- tion Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 55.		
EL	>1 E9			Ibid.		
EM	<b>&gt;</b> 1 E 9			Ibid.		
SS	<b>&gt;</b> 1 E 9			Ibid.		
IS	8.8E7			King, R.W., REIC Report No. 21, 1961.		
TS	8.8E7	4.4E9		Ibid.		
TS			-20%, <b>&gt;</b> IE10	Parkinson, W.W., Nucl. Engr. and De- sign, Vol. 17, 1971, p. 256.		
EL		·	-20%,>1E10	Ibid.		
HD ·			-20%,≯1E10	Ibid.		
•						

Material: Polyvinyl chloride

Material:	Polyvinyl o			
Property		Radiation Dat		Other Information*
	LTD (rads)	25CD (rads) (25CDR( <u>rads</u> )	$\begin{pmatrix} CD & (rads) \\ -CDR & (rads) \\ hr \end{pmatrix}$	
TS			-5.1%,4.4E6	Thickness, 0.5mm/Makhlis, F. A., Rad. Phys. and Chem. of Polymers, Wiley, 1975, p. 244.
TS			-4.1%,8.7E6	Ibid.
TS		·	-32.0%,4.4E7	Ibid.
EL	ł		-5.3%,4.4E6	Ibid.
EL			-2.2%,8.7E6	Ibid.
TS			-20%,1E9	In Air/Parkinson, W.W., and Sisman, O., Nucl. Engr. and Design, Vol.17,1971, p.247.
IS			-20%,1E9	Ibid.
Unstated	1E5			Baur, J.F., Radiation Damage Limit for Diagnostic Components, General Atomic Co., July 1981, p.7.
Unstated	i	1.2E8		Ibid.,p. 9.

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CLASS: INSULATOR

Material: Polyvinyl chloride

Material:	Polyvinyl (	chloride		
Property		Radiation Dat	<u>a</u>	Other Information*
	LTD (rads) (LTDR (rads)		$\begin{pmatrix} CD & (rads) \\ -CDR & (rads) \\ hr \end{pmatrix}$	4
EL	8E5	9E6	-10%,3.5E6	G/In Air, 25°C/Clough, R. L. and Gillen, K. T.,
	(4E3)	(4E3)	(4E3)	Radiation-Thermal Degradation of PE and PVC, Radiat. Phys. Chem., Vol. 18, No. 3-4, 1981, p. 663.
EL		•	-15%,5E6	Ibid.
			(4E3)	
EL			-20%,7E6	Ibid.
			(4E3)	
EL		4E6	-10%,2E6	G/In Air,60 <sup>0</sup> /Clough, R.L., and Gillen, K.T.,
·		(3.5E3)	(3.5E3)	Radiation-Thermal Degradation of PE and PVC, Radiat.Phys. Chem. Vol.18,No.3-4,1981, p. 664.
EL			-20%,3E6	Ibid.
			(3.5E3)	·
EL			-30%,5E6	Ibid.
			(3.5E3)	
EL			-50%,7E6	Ibid.
			(3.5E3)	
· EL			-70%,9E6	Ibid.
			(3.5E3)	
•				

Material: Polyvinyl chloride

material:	Polyvinyi c	nioride		
Property		Radiation Dat		Other Information*
	LTD (rads (LTDR (rads)	25CD (rads) (25CDR( <u>rads</u> )	$\begin{array}{c} CD & (rads) \\ CDR & (rads) \\ CDR & (rads) \end{array}$	
EL		1.3E6	-21%,1E6	G/In Air, 80°C/Clough,
		(4E3)	(4E3)	R. L. and Gillen, K. T., Radiation-Thermal De- gradation of PE and PVC, Radiat. Phys. Chem., Vol. 18, No. 3-4, 1981, p. 663.
EL	].		-30%,1.8E6	Ibid.
		·	(4E3)	
EL			-40%,2.5E6	Ibid.
			(4E3)	
EL			-50%,3.5E6	Ibid.
			(4E3)	
EL			-60%,4E6	Ibid.
			(4E3)	
EL			-75%,5E6	Ibid.
		·	(4E3)	
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		,		
	·			
•				

Material: Polyvinyl | chloride

We reliet:	Pulyviny i			
Property		Radiation Date	8	Other Information*
	LTD (rads) (LTDR (rads)	25CD (rads) (25CDR(rads)	$\begin{pmatrix} CD & (rads) \\ -CDR & (rads) \\ hr \end{pmatrix}$	· · · · · · · · · · · · · · · · · · ·
EL	7.5E5	) ·	-5%,2E6	G/25°C, In Air/Bonzon,
· •	(4.4E3)		(4.4E3)	L. L., et. al., The Qual. Testing Eval. QTE Program for Safety-Related Equip- ment, IAEA-CN-39/104, SAND80- 0544C, October 24, 1980, p. 15.
EL			-10%,3.6E6	Ibid.
			(4.4E3)	•
EL			-23%,1E7	Ibid.
			(4.4E3)	
EL	7.5E5	2.9E6	-5%,1.4E6	G/80°C, In Air/Bonzon, L. L.,
	(4.5E3)	(4.5E3)	(4.5E3)	et. al., The Qual. Testing Eval. QTE Program for Safety-Related Equipment, IAEA-CN-39/104, SAND80-0544C, October 24, 1980, p. 15.
EL			-10%,2.2E6	Ibid.
			(4.5E3)	
EL			-40%,3.5E6	Ibid.
			(4.5E3)	
EL			-50%,4.2E6	Ibid.
			(4.5E3)	
EL			-75%, 1E.7	Ibid.
			(4.5E3)	

Material: Polyvinyl chloride

material:		hloride		·
Property	ITD (made)	Radiation Date		Other Information*
	LTD (rads) (LTDR (rads)	25CD (rads) (25CDR(rads))	$\begin{pmatrix} CD & (rads) \\ -CDR & (rads) \\ hr \end{pmatrix}$	
EL		6E6	-15%,4E6	G/In Air, 60°C/Clough, R. L., and Gillen, K. T.,
		(1.76E4)	(1.76E4)	Radiation-Thermal Degrada- tion of PE and PVC, Radiat.
				Phys. Chem., Vol. 18, No. 3-4, 1981, p. 664.
EL			-35%,8E6	Ibid.
			(1.76E4)	1514.
ĒL			-59%,1.2E7	Ibid.
EL .			(1.76E4)	1014.
E)	·			Ibid.
EL			-68%,1.4E7	ibid.
F.			(1.76E4)	***
EL	į		-72%,1.6E7	Ibid.
			(1.76E4)	
•				

Material: Polyvinyl chloride

Materia	I: Polyvinyl (	chioride		
Property		Radiation Date	<u> </u>	Other Information*
	LTD (rads) (LTDR (rads)	25CD (rads) (25CDR( <u>rads</u> )	$\begin{pmatrix} CD & (rads) \\ -CDR & (rads) \end{pmatrix}$	
EL		9E6	-18%,8E6	G/In Air, 60°C/Clough, R. L., and Gillen, K. T.,
		(7.1E4)	(7.1E4)	Radiation-Thermal Degrada- tion of PE and PVC, Radiat. Phys. Chem., Vol. 18, No. 3-4, 1981, p. 664.
EL			-40%,1.2E7	Ibid.
	<b> </b> -	·	(7.1E4)	
EL			-47%,1.4E7	Ibid.
			(7.1E4)	
EL			-58%,1.75E7	Ibid.
	·		(7.1E4)	
EL			-72%,2.5E7	Ibid.
			(7.1E4)	
			:	
		·		
•				
		,		

EL

·EL

EL

Material: Polyvinyl chloride Property Radiation Data Other Information\* LTD 25CD (rads) CD (rads) (rads)  $\left(\frac{\text{LTDR}}{\text{hr}}\left(\frac{\text{rads}}{\text{hr}}\right)\right)\left(\frac{\text{CDR}}{\text{hr}}\left(\frac{\text{rads}}{\text{hr}}\right)\right)$ G/In Air, 60°C/Clough, EL 1.2E7 R. L., and Gillen, K. T., Radiation-Thermal Degrada-(3.6E5)tion of PE and PVC, Radiat. Phys. Chem., Vol. 18, No. 3-4, 1981, p. 664. EL -12%,6E6 Ibid. (3.6E5)EL -29%,1.4E7 Ibid. (3.6E5)EL -43%,2E7 Ibid.

(3.6E5)

(3.6E5)

-62%,3E7

(3.6E5)

(3.6E5)

-67%,3.4E7

-50%,2.3E7

Ibid.

Ibid.

Ibid.

Material: Polyvinyl chloride

	Material:	POLYVINY	chloride		
_	Property	· · · · · · · · · · · · · · · · · · ·	Radiation Dat		Other Information*
		LTD (rads (LTDR (rads)	) 25CD (rads) ) ( <sup>25CDR</sup> ( <del>rads</del> )	$\begin{array}{c} CD & (rads) \\ (-CDR) & (\frac{rads}{hr}) \end{array}$	),
	EL		1.4E7 (9.4E5)		G/In Air, 60°C/Clough, R. L., and Gillen, K. T., Radiation-Thermal Degrada- tion of PE and PVC, Radiat. Phys. Chem., Vol. 18, No. 3-4, 1981, p. 664.
	EL			-12%,8E6	Ibid.
	EL		·	(9.4E5) -20%,1.2E7	Ibid.
				(9.4E5)	
	EL			-35%,2E7	Ibid.
	EL			(9.4E5) -48%,3E7	Ibid.
				(9.4E5)	
	EL			-48%,3E7 (9.4E5)	Ibid.
	EL			-56%,4E7	Ibid.
	EL			(9.4E5)	****
	<b></b>			-60%,4.8E7 (9.4E5)	Ibid.
			į		

Material: Polyvinvl chloride; Supplier; Draka

Property	701,9411171	Badistian Dat	•	OAL - Tele All A
Property	LTD (rads)	Radiation Date 25CD (rads)	CD (rads)	Other Information*
	(LTDR (rads)	(25CDR(rads)	$\left(\frac{\text{CDR}}{\text{hr}}\right)$	4
EL	1E7	2.7E7	-38%,4.3E7	G/In Air/Schonbacher, H., and
	(1E7)	(1E7)	(1E7)	Stolarz-Izycka, A., Compilation of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979, p. 147.
EL			-77%,1.0E8	Ibid.
	<b>.</b>		(1E7)	
EL		İ	-95%,5.0E8	Ibid.
			(1E7)	
HD			†11%,5.1E8	Ibid.
			(1E7)	·
TS	1E7	·	-18%,3.7E7	Ibid.
	(1E7)		(1E7)	
TS			÷16%,1.2E 8	Ibid.
			(1E7)	
TS			+21%,5.0E8	Ibid.
			(1E7)	
				·
			*	
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			ľ	

Material: Polyvinyl chloride; Supplier; Draka

	FUIYVIIIYI		Supplier, or	aka
Property		Radiation Dat		Other Information*
	LTD (rads (LTDR (rads hr	25CD (rads) 25CDR(rads) hr	$\begin{array}{c} CD & (rads) \\ CDR & (rads) \\ CDR & (rads) \end{array}$	•
EL		6.5E7 (1E7)	-17%,4.6E7 (1E7)	G/In Air/Schonbacher, H., and Stolarz-Izycka, A., Compilation of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979,
EL			-79%,1.7E8	p. 147.
	ŀ		(1E7)	
EL			-97%,5.1E8 (1E7)	Ibid.
TS		+1.6E8	+8%,1.5E8	Ibid.
TS		(1E7)	(1E7) +62%,4.8E8	Ibid.
		! !	(1E7)	10.0.
•				•

Material: Polyvinyl chloride acetate

Property		Radiation Data	<u> </u>	Other Information*
		$ \begin{array}{c} 25CD (rads) \\ (25CDR(\frac{rads}{hr})) \end{array} $	$\begin{pmatrix} CD & (rads) \\ -CDR & (rads) \\ hr \end{pmatrix}$	•
TS			-20%,6E7	Parkinson, W. W., Nucl. Engr. and Design, Vol. 17, 1971, p. 255
EL			-20%,2.5E8	Ibid.
EL	1.4E6	·	-50%,3E7	King,R.W.,et al., REIC 21, 1961 and Addendum,1964.
SS	<b>5</b> E7			Ibid.
TS	5E8 <sub>.</sub>	. •		Ibid.
IS	4E9			Ibid.

Material: Polyvinyl chloride cable

TS .			-5%,2E6	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 46.
TS			-15%,1E8	Ibid.
TS	ļ.		-20%,2E8	Ibid.
EL		1E7	-15%,2E6	Ibid.
EL	·		-50%,7E7	Ibid.
EL			-70%,2E8	Ibid.

Material: Polyvinyl chloride - Geon 2046

material:	, •				
Property		Radiation Dat		Other Information*	
	LTD (rads (LTDR (rads	25CD (rads) 25CDR(rads) hr	$\begin{array}{c} CD & (rads) \\ CDR & (\frac{rads}{hr}) \end{array}$	)	
TS	4.5E8	1.9E9	-50%,3E9	Goetzel, C. G., and Singletary, J. B., Space Materials Handbook, Lock- heed Missiles and Space Corp., January 1962, p. 335.	
EL	1.9E7	1.1E8	-50%,3.5E8	Ibid.	
Material	: Polyviny	1 chloride-	Geon 8630		
TŞ			-20%,6E6	Parkinson, W.W., Nucl. Engr. and Design, Vol.17 1971,p.254.	
EL			-20%,1E7	Ibid.	
Material	: Polyviny	l chloride ·	- Geon 8640		
TS	1		-20%,6E6	Ibid.	
EL			-20%,1.5E7	Ibid.	
	·				

Material: Polyvinyl chloride with antirads: Supplier; Thomson-Brandt

Property	1	Radiation Date	3	Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> )	$\begin{pmatrix} \text{CD (rads)} \\ \text{CDR (rads)} \end{pmatrix}$	
EL .	1E7 (1E7)	2.5E7 (1E7)	-34%,3.5E7 (1E7)	G/In Air/Antirad/Schonbacher, H., and Stolarz-Izycka, A., Compilation of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979, p. 169.
EL			-40%,1.0E8	Ibid.
			(1E7)	•
TS	1E7		+23#,3.3E7	Ibid.
	(1E7)		(1E7)	
TS			+5%,1.1E8	Ibid.
		† .	(1E7)	

## Material; Polyvinyl fluoride

I I Nucl.	inson,W.W Engr. and gn, Vol.17,
EL -20%,2E7 Ibid	•
EL -50%,5E7 Ibid	•

Material: Polyvinylformal

material:	POLYVINYIT	ו אורזט		
Property		Radiation Dat		Other Information*
	LTD (rads)	25CD (rads) (25CDR( <u>rads</u> )	$ \begin{array}{c} \text{CD} & (\text{rads}) \\ \text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{array} $	
TS	4E7	3E8	-10%,1E8	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, P. 54.
TS	Ì		-50%,1.5E9	Ibid.
EL	- 4E7	+9E7	+40%,1E8	Ibid.
EL	-		+50%,8E8	Ibid.
EL			+0%,1E9	Ibid.
EL		1.5E9	-50%,2E9	Ibid.
EL			-75%,3E9	Ibid.
EIA	<b>2</b> E7	1E8	-50%,3E8	Ibid.
EM			-70%,8E8	Ibid.
TS	<b>2E</b> 7	1E8		Rads(C)/Nuclear and Space Radiation Effects on Materials, NASA SP-8053, June 1970, p. 31.
TS		·	-20% <b>,</b> 4E8	Parkinson, W. W., Nucl. Engr. and Design, Vol. 17, 1971, p. 252
EL			-20% <b>,</b> 9E8	Ibid.
			`	

Material: Polyvinylidene chloride

Property	1019111911	Radiation Date	•	Other Information*
r roper cy	LTD (rads)		_CD (rads)	Other Information
	(LTDR (rads)		$\left(\frac{-CDR}{rads}\right)$	•
TS	1E7	2E8	-50%,7E8	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 47.
TS		]	-75%,3E9	Ibid.
EL	· 5E6	4E7	-50%,2E8	Ibid.
EL			-75%,5E9	Ibid.
EM	1E6	7E8	+15%,1E8	Ibid.
•			+0%,3E8	Ibid.
			-30%,1E9	Ibid.
			-50%,2E9	Ibid.
			-75%,2.5E9	Ibid.
SS	5E7	5E8	-40%,1E9	Ibid.
			-50%,1.5E9	Ibid.
			-75%,3E9	Ibid.
EL	3.7E6	4.1E7		Kircher, J.F., and Bowman, R.E., Effects of Radiation on Materials and Components, Reinhold, 1964.
TS	3.7E6	1.6E8		Ibid.
SS	+4.1E7			Ibid.

Material: Polyvinylidene fluoride, Kynar

	to 13 4 tilly 1	Tuelle i luori	- •	
Property		Radiation Dat		Other Information*
	LTD (rads) (LTDR (rads) hr)		$\binom{CD}{-CDR} \binom{rads}{hr}$	
TS	1E8			(C)/In Air/Kamen, R. E., Radiation Effects on HS-350 Materials, Vol. I, Natural Space Radiation, Report 74-87, Hughes Aircraft Co., April 1974, p. 6-14.
DE	2E8			Ibid.
Material:	Pyrrone , po	lyimidazopyrr	<b>o</b> lone	_
FS	1E8		+2%,1E9	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 75.
			+3%,1E10	Ibid.
EM	1E8		+2%,1E9	Ibid.
			+10%,1E10	Ibid.
EL	1E8			Ibid.
Material:	Silicone,	lass-filled	i	
TS	1E8	]	+6%,5E8	Ibid,p. 76
			+12%,1E9	Ibid.
TS	1E8	2E8	-12%,1E8	Ibid.
SS			-50%,4E8	Ibid.
\$\$	·		-75%,1E9	Ibid.
SS				
•			,	

Material: Silicone treated glass fiber

Property		Radiation Data	1	Other Information*
Unstated	LTD (rads) (LTDR ( <u>rads</u> ) 1E7	25CD (rads) (25CDR( <u>rads</u> ))	CD CDR	
	5	8	Ī	

Material: Silicone, unfilled

TS	7E6	<b>4</b> E7	-5%,1E7	Van de Voorde and Restat, C., Selection Guide to Organic Mat- erials for Nuclear Engineering, CERN 72-7, May 17,1972,p.75.
TS			-50%,7E7	Ibid.
TS			-75%,2E8	Ibid.

Material: Styrene- acrylonitrile

TS ·	•	-20%, <b>&gt;</b> 1E10	Parkinson,W.W., Nucl.Engr. and De- sign, Vol.17, 1971,p.256.
EL		-20%,4E8	Ibid.

Material: Triallyl cyanurate

	•	- •			
SS	1		-20%,	5E9	Ibid.
					f

CLASS: INSI

**INSULATOR** 

Material: Urea formaldehy	/de
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material:	urea forma	<u>*</u>	_	04h 1-6
Property	LTD (rads)	Radiation Date 25CD (rads)	CD (rads)	Other Information*
	(LTDR (rads)	(25CDR( <u>rads</u> )	$\binom{-CDR}{rads}$	4
TS	5E6 .	3.5E7	-50%,8E8	Van de Voorde and Restat. C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 60.
TS			-75%,2.5E8	Ibid.
TS			-90%,4E8	Ibid.
EL	5E6	3.5E7	-50%,8E8	Ibid.
EL			-75%,2.5E8	Ibid.
EL			-90%,4E8	Ibid.
EM	5E7		-4%,1E8	Ibid.
EM '		·	-10%,4E8	Ibid.
SS	5E6	3.5E7	-50%,8E8	Ibid.
SS			-75%,2.5E8	Ibid.
SS			-90%,4E8	Ibid.
EL	8.3E6	5.1E7		Rads(C)/Kircher, J.F., and Bowman, R.E., Effects of Radiation on Materials and Components, Reinhold, 1964, p. 101. LTD is surface dose only.

Material: Urea formaldehyde

Property	F	Radiation Data	<u> </u>	Other Information*
	LTD (rads) (LTDR (rads) hr)		$\begin{pmatrix} \text{CD} & (\text{rads}) \\ \left( \frac{\text{CDR}}{\text{hr}} \left( \frac{\text{rads}}{\text{hr}} \right) \right) \end{pmatrix}$	·
TS	7.5E6	<b>3</b> E7		Plaskon Urea/ King, R.W., et al.,REIC Report 21, 1961 and Addendum,1964.
EL	7.5E6			Ibid.
EM	3.2E7			Ibid.
IS	3.2E7			Ibid.

Material: Urea formaldehyde, cellulose filled

TS	·	-20%,3E7	Parkinson, W.W., Nucl. Engr. and Design, Vol.17,1971, p.253.
TS		-50%,1E8	Ibid.
EL		-20%,3E7	Ibid.
EL		-50%,1E8	Ibid.

Material: Vinyl chloride-vinylidene chloride copolymer

TS		-20%,4.5E6	Ibid.
EL		-20%,1E6	Ibid.
HD		-20%,1E6	Ibid.
			ł

Material: Adduct Rubber, 92% Saturation

Property		Radiation Data	Other Information*
	LTD (rads) (LTDR (rads) hr)		ads)
TS		-20%,	Parkinson, W. W., Nucl. Engr. and De- sign, Vol. 17, 1971, p. 273.
EL		-20%,	2E7 Ibid.
EL	4E6	-20%,1.	.9E7 Bolt, R.O. and Carroll, J.G., Radia-tion Effects on Organic Materials, Academic Press, 1963.
TS	4E6	.	Ibid.

Material: Acrylic butadiene styrene

TS	1E7	5E8	+10%,3E7	Van de Voorde M.H., and Restat, C., Selec- tion Guide to Organic Materials for Nuclear Engin- eering, CERN 72-7, May 17, 1972, p.53.
TS			+30%,1E8	Ibid.
TS			+29%,2E8	Ibid.
TS			+0%,4E8	Ibid.
TS	İ		-40%,1E9	Ibid.

Material: Butadiene, styrene

material:	Butadiene	= =		·
Property		Radiation Dat		Other Information*
	LTD (rads) (LTDR (rads) hr)		$\begin{pmatrix} \text{CD} & (\text{rads}) \\ -\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	t
TS	8E7	<b>3</b> E8	<b>-5</b> 0%,5E8	Van de Voorde, M. H., and Restat, C., Selection Gui to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 85
TS			-10%,1.8E8	Ibid.
EL	3E6	2.2E7	-10%,1E7	Ibid.
EL .	ľ		-50%,4.5E7	Ibid.
EL			-70%,1E8	Ibid.
SB	3E6	2.2E7	-10%,1E7	Ibid.
SB ·			-50%,4.5E7	Ibid.
SB			-70%,1E8	Ibid.
SB			-90%,3E8	Ibid.
CS	2E6	1E7	-50%,5E7	Ibid.
CS	•		-75%,3E8	Ibid.
HD	1E7	<b>+3E8</b>	+20%,2E8	Durometer Hardness/Van d Voorde, M. H., and Resta C., Selection Guide to Organic Materials for Nuclear Engineering, CER 72-7, May 17, 1972, p. 8
HD	·		+50%,1E9	Ibid.

Material: Butadiene styrene

material:	Rutadiene	styrene		•
Property		Radiation Dat		Other Information*
	LTD (rads) (LTDR (rads) hr)		$\begin{pmatrix} \text{CD} & (\text{rads}) \\ -\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	•
TS			-20%,2.2E8	Parkinson, W.W., Nucl. Engr. and Design, Vol. 17, 1971, p. 272.
EL ·			-20%,2.5E7	Ibid.
CS			-20%,6E6	Ibid.
CS	1E6		-30%,1.7E8	King, R.W., et al, The Effect of Nuclear Radiation on Elastomeric and Plastic Components and Materials, Battelle Memorial Institute Radiation Effects Information Center Report REIC 21, 1961, and Addendum, 1964.
TS			-30%,1.7E8	Filler/Ibid.
EL			-69%,1.7E8	Filler/Ibid.
HD	7E6	!		No filler/Ibid
£L	2E6	1E7		No filler/Ibid.

Material: Butadiene styrene

Material: Butadiene Styrene					
Property		Radiation Data		Other Information*	
J	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ (\text{-CDR} & (\text{rads} \\ \text{hr}) \end{pmatrix}$		
TS			+3%,5E7	G/Makhlis, F.A., Rad. Phys. and Chem. of Polymers, Wiley, 1974,p.240.	
TS			+0%,2E8	Ibid.	
TS			+1%,5E8	Ibid.	
CS		1E7		Rads (C)/Nuclear and Space Radia- tion Effects on Materials, NASA SP-8053, June, 1970, p. 33.	
CS	1.8E6			Kircher, J.F., Effects of Radia- tion on Materials and Compoents, Reinhold Publ. Co., 1964.	
TS			-20%,>1E10	Parkinson, W.W., Nucl. Engr. and De- sign, Vol.17, 1971, p.252.	
EL			-20%,2E8	Ibid.	
HD			-20%,2E8	Ibid.	

CLASS: ELASTOMER
Material: Butvl

Material:	Butyl			
Property		Radiation Dat	a	Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads)	$\binom{\text{CD}}{-\text{CDR}} \left( \frac{\text{rads}}{\text{hr}} \right)$	
TS	,		-20%,3E7	Parkinson, W.; Nucl. Engr. and Design, 17,1971, p. 272. Rads (C); NASA SP-8053, June, 1970, p. 33.
TS		7E5	-50%,3E6	King, R.W., et al, The Effect of Nuclear Radiation on Elastomeric and Plastic Components and Materials, Battelle Memorial Institute Radiation Effects Information Center Report REIC 21, 1961, and Addendum, 1964.
EL		5E6	-50%,7E6	Ibid.
EL		4E7		Ibid.
TS		2E7		Ibid.

CLASS: ELASTOMER'
Material: Butyl

Material:	Butyl			
Property		Radiation Date	<b>a</b>	Other Information*
	LTD (rads) (LTDR (rads)	25CD (rads) (25CDR(rads) hr	$\begin{pmatrix} \text{CD (rads)} \\ \text{CDR (} \frac{\text{rads}}{\text{hr}} \end{pmatrix} \end{pmatrix}$	1
TS	<b>&gt;</b> 7E6	2.3E7	-50%,4.2E7	Goetzel, C. G., and Singletary, J. B., Space Materials Handbook, Lockheed Missiles and Space Corp., January 1962, p. 335.
EL	<b>&gt;</b> 7E6	+5.5E7	,	Ibid.
TS	<b>&lt;</b> 3E6	1E7	-50%,2E7	G/Makhlis, F. A., Rad. Phys. and Chem. of Polymers, Wiley, 1975, p. 240.
TS		! !	-75%,3.2E7	Ibid.
TS			-100%,5E7	Ibid.
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CLASS: ELASTOMER
Material: Butyl

Material:	Butyl			
Property		Radiation Dat		Other Information*
	LTD (rads		$\begin{array}{c} CD & (rads) \\ CDR & (rads) \\ CDR & (rads) \end{array}$	)
TS∙	1E6	2E6	-50%,7E6	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 80.
TS			-60%,1E7	Ibid.
TS			-75%,2.5E7	Ibid.
TS			-90%,4.5E7	Ibid.
EL	1E6 .	3E7	-10%,4E6	Ibid.
EL			-20%,2E7	Ibid.
EL			-20%,5E7	Ibid.
EL			-10%,6E7	Ibid.
HD	1E6	5E7	-10%,1E7	Durometer Hardness/ Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 80.
HD			-35%,6E7	Ibid.
.				·

CLASS: ELASTOMER
Material: Butyl

Property		Radiation Date	ā.	Other Information*
TS	LTD (rads) (LTDR (rads) hr) 2E7		$\begin{pmatrix} \text{CD} & (\text{rads}) \\ \text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	Neutrons, k = 4E-9/ Sisman, O., ASTM Symp. on Radiation Effects on Materials,
CS	,	<b>4</b> E6		Rads(C)/Nuclear and Space Radia-tion Effects on Materials, NASA SP-8053, June, 1970, p. 33.
EL			-50%,1E8	In Air/Bopp, C.D., and Sisman, O., Rad- iation Stability of Plastics and Elasto- mers, Nucleonics, July, 1955, p. 28.

Material: Butyl, GR-5

EL

-50%, 1E8

In Air/Bopp, C.D., and Sisman, O., Radiation Stability of Plastics and Elastomers, Nucleonics, July, 1955, p. 28.

Material: Butyl, GR-150

TS		-20%,4E7	Parkinson, W.W., Nucl. Engr. and Design, Vol. 17, 1971, p. 272.
EL	·	-20%,5E7	Ibid.
CS		-20%, 1E6	Ibid.

Material: Fluorocarbon, fluorinated ethylene propylene Teflon FEP

			- ,	ylene letion FEP
Property		Radiation Dat		Other Information*
	LTD (rads) (LTDR (rads) hr)		$\begin{array}{c} \text{CD} & (\text{rads}) \\ \text{CDR} & \left(\frac{\text{rads}}{\text{hr}}\right) \end{array}$	) 1
TS	1E6		-50%,1E8	(C)/Vacuum/Kamen, R. E., et al, Radiation Effects on HS-350 Materials, Vol. I, Natural Space Radiation, Report p. 74-87, Hughes Aircraft Co., April, 1974, p. 6-9.
TS	Ì		-60%,8E9	Ibid.
EL	7E6		-13%,1E7	(C)/Vacuum/10 mils thick/Kamen, R. E., Radiation Effects on HS-350 Materials, Vol. I, Natural Space Radia- tion, Report p. 74-87, Hughes Aircraft Co., April, 1974, p. 6-10.
EL			-55%,2E7	Ibid.
EL			-78%,3E7	Ibid.
EL			-91%,4E7	Ibid
EL			-100%,8E7	Ibid.
DE			<b>&gt;</b> 15%,1E6	Ibid.
				·

Material: Fluorocarbon, Teflon - FEP

Property	1	Radiation Data		Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ \text{CDR} & \left(\frac{\text{rads}}{\text{hr}}\right) \end{pmatrix}$	]
TS	1E4	<b>2</b> E5	-50%, 2.5E5	Van de Voorde, M.H., and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 48.
TS			-75%, 3E5	Ibid.
EL	1E4	5E4	-50%, 3E5	Ibid.
EL			-60%, 2E6	Ibid.

Material: Fluorocarbon, Teflon 100 FEP

	 , ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,	
TS		<b>-5.7%,</b> 2.6E6	E, 2Mev/In Nitrogen, 250°C/Bowers, G.H., and Lovejoy, E.R., Crosslinking of Teflon 100 FEB Fluor-carbon Resin by Radiation, IEEC Product R & D, Vol. 1, June, 1962, p. 90.
TS		+12.5%,6.5E6	Ibid.
TS		+13%, 1.3E7	Ibid.
TS		+78%, 1.3E8	Ibid,
			·

Material: Fluorocarbon, Kel-F

LTD (rads)	Radiation Date 25CD (rads)		Other Information*
LTD (rads)	25CD (rads)		
1E6 (1805)		_CD (rads) (_CDR ( <u>rads</u> ))  -10%,1E7	Van de Voorde, M. H., and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 81.
		-35%,1E8	Ibid.
		-50%,3E8	Ibid.
-		-75%,7E8	Ibid.
3E6	2E7	-12%,1E7	Ibid.
		-50%,6E7	Ibid.
		-60%,1E8	Ibid.
		-75%,3.5E8	Ibid.
		-80%,5E8	Ibid.
1E6	+1.5E8	+5%,1E7	Ibid.
		+20%,1E8	Ibid.
		+30%,2E8	Ibid.
		+40%,5E8	Ibid.
	1.7E7		Baur, J. F., Radiation Damage Limit for Diagnostic Components, General Atomic Co., July, 1981, p. 13.
	3E6	1E6 4.5E7  3E6 2E7  1E6 +1.5E8	1E6 4.5E7 -10%,1E7  -35%,1E8 -50%,3E8 -75%,7E8 -12%,1E7 -50%,6E7 -60%,1E8 -75%,3.5E8 -80%,5E8 +1.5E8 +5%,1E7 +20%,1E8 +30%,2E8 +40%,5E8

Material: Fluorocarbon - polytetrafluoroethylene, Teflon TFE

material:	Fluorocarbon - polycecral luoroethytene, lellon ire				
Property		Radiation Data		Other Information*	
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ -\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	1	
TS .		,	-50%,1E7	(C)Kamen, R.E., Radiation Effects on HS-350 Materials, Vol. I, Natural Space Radiation, Report 74-87, Hughes Aircraft Co., April, 1974, p. 6-14.	
TS			-60%,8E8	Ibid.	
TS	3E4	2E5	-30%,3E5	Van de Voorde and Restat, C., Selection Guide to Organic Mat- erials for Nuclear Engineering CERN 72-7, May 17, 1972, p. 48.	
TS			-50%,5E6	Ibid.	
EL	2E4	3E4	-50%,5E4	Ibid.	
EL			-75%,2E5	Ibid.	
EM	1E6		+2%,8E6	Ibid.	
SS	2E5	· 4E5	-50%,2E6	Ibid.	
SS			-51%,8E6	Ibid.	
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CLASS: ELASTOMER

Material: Fluorocarbon, Teflon TFE

Material:		bon, Teflon		
Property	LTD (rads)	Radiation Data 25CD (rads)		Other Information*
	(LTDR (rads)		$\begin{pmatrix} \text{CD} & (\text{rads}) \\ -\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	
TS			-50%,7E7	Bopp, C. D., and Sisman, O., Radiation Stability of Plastics and Elastomers, Nucleonics, Vol. 13, No. 7, July 1955, p. 28.
EL			-50%,3E6	Ibid.
SS			-50%,1E8	Ibid.
IS		·	-50%,1E8	Ibid.
BR			-98%,3.8E6	In Air/Bouquet, F. L., Summar of the Mechanical Properties of Teflon (PTFE) in Nuclear Radiation, JPL Unpublished Data, July 30, 1975.
BR ·			-99%,6.6E6	Ibid.
cs		1 E 6		Rads (C)/Nuclear and Space Radiation Effects on Materials, NASA SP-8053, June, 1970, p. 33.
CS	1E5			American Society for Testing and Materials, 'Space Radiation Effects on Materials," ASTM Special Technical Publ.No. 330,1962.Also No. 363,1964; Bouquet, F.L., Price, W.E. and Newell, D.M., "Designers' Guide to Radiation Effects on Materials for Use on Jupiter Fly-Bys and Orbiters, IEEE Trans.Nucl.Sci. Vol.NS-26,No.4,August, 1979. p. 4660-4669.

CLASS:

**ELASTOMER** 

Material: Fluorocarbon, polytetra fluoroethylene, Teflon

Property	, 140100415	Radiation Dat	ā .	Other Information*
	LTD (rads) (LTDR (rads) hr)		$\left(\frac{\text{CDR}}{\text{hr}}\left(\frac{\text{rads}}{\text{hr}}\right)\right)$	Dankinsan W W
TS			-90% ,8E7	Parkinson, W. W., Nucl. Engr. and Design, Vol. 17, 1971, p. 256.
EL			-50%,2E5	Ibid.
Unstated	1E4			Baur, J. F., Radia- tion Damage Limit for Diagnostic Com- ponents, General Atomic Corp., July, 1981, p. 7.
Unstated	2E4			G/Bussard, R. W. and DeLauer, R. D., Fund. of Nuclear Flight, Mc-Graw Hill,1965,p. 341.
ОС			1E13	E, 3 Mev, Electron Fluence/Bouquet,F.L. and Koprowski, E.F., Jupiter Radiation Effects on Spacecraft Materials, 19th. IEEE Annual Conf. on Nucl. and Space Radiation Effects, Las Vegas,NV, July 21, 1982, p. 3. Surface flaking observed.
TS	2E4	4E4 <sup>-</sup>		Rads(C)in Air/Nuclear and Space Radiation Effects on Materials, NASA SP-8053, June, 1970, p. 31.
TS	∵ 4E5			In Vac./Ibid.

Material: Fluorocarbon, polytetrafluoroethylene, Teflon TFE

material:					
Property	1.50	Radiation Dat		Other Information*	
	LTD (rads (LTDR (rads) hr)	25CD (rads) 25CDR(rads)	$\begin{array}{c} CD & (rads) \\ CDR & (\frac{rads}{hr}) \end{array}$		
TS			-37%,1E5	In Air/Makhlis, F.A., Rad. Phys. and Chem. of Polymers, Wiley, 1975, p. 247.	
TS			-49%,5E5	Ibid.	
TS			-54%,1E6	. Ibid.	
TS			-56%,5E6	Ibid.	
TS	İ		-17%,1E6	In Vac./Ibid.	
TS			-34%,5E6	Ibid.	
TS			-51%,5.1E7	Ibid.	
EL		İ	-8%,1E5	In Air/Ibid.	
EL			-78%,5E5	Ibid.	
EL			-87%,1E6	Ibid.	
EL		,	-44%,1E6	In Vac./Ibid.	
EL			-56%,5E6	Ibid.	
EL			-77%,5.1E7	Ibid.	
EL			-90%,1.5E8	Ibid.	
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CLASS: ELASTOMER

Material: Fluorocarbon, polytetra fluoroethylene/Teflon-TFE

Property		Radiation Date	Other Information*	
	LTD (rads) (LTDR (rads)	25CD (rads) (25CDR( <u>rads</u> )	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ \text{CDR} & \left(\frac{\text{rads}}{\text{hr}}\right) \end{pmatrix}$	
EL	1.7E4	3.4E4		Rads(C)/Kircher, J. F., Effects of Radia- tion on Materials and Components, Reinhold Publ. Co., 1964, p. 105.
TS	2.1E4	1.2E5		Rads(C)3400 psi/Ibid, p. 95.
EL	1.5E4	3.4E4		Rads(C)/250%, Ibid, p. 95.
EM	1.8E5	2.3E7		Rads(C)1.0E5 psi/ Ibid, p. 95.
TS	2.3E4	1.3E5	-50% <b>,</b> 1E6	Goetzel, C. G., and Singletary, J. B., Space Materials Hand- book, Lockheed Miss- iles and Space Corp., January, 1962, p. 335.
EL .	1.7E4	3.7E4	-50%,8.0E4	Ibid.
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Material: Fluorocarbon, Tefzel					
Property		Radiation Dat	<u>a</u>	Other Information*	
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> )	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ -\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$		
EL		2.5E7	-20%,5E6	E/In Air, Room Temp./ DuPont Tefzel Fluoro- polymer Design Handbook, p. 21.	
EL			-64%,4.5E7	Ibid.	
EL			-85%,1.5E8	Ibid.	
EL	ľ		-92%,2E8	Ibid.	
EL		2E7 _	÷50%,3E7	Gillen, K.T. and Salazar, "Aging of Nuclear Power Plant Safety Cables, "Sandia Laboratories Report No. 78-0344, 1978; "Model for Combined Environment Accelerate Aging Applied to a Neoprene Cabling Jacking Material, SAND 78-0559C, 1978.	
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Material: Fluorocarbon, Viton: Supplier: Gummi Maag

na certat		ocardon, vito	on: Supplier	:Gummi Maag
Property		Radiation Da	ita .	Other Information*
	LTD (rads	25CD (rads 25CDR( <u>rads</u> hr	$\begin{array}{c} \begin{array}{c} \begin{array}{c} \text{CD} & (\text{rads}) \\ \end{array} \\ \begin{array}{c} \begin{array}{c} \text{CDR} & \left( \frac{\text{rads}}{\text{hr}} \right) \end{array} \end{array}$	
EL	1E5	1.6E6	-69%,4.1E7	G/In Air/Schonbacher, H.,
	(1E7)	(1E7)	(1E7)	and Stolarz-Izycka, A., Compilation of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979, p. 209.
EL	İ		-95%,8.0E7	Ibid.
	ĺ		(1E7)	
EL			-99%,1.0E8	Ibid.
			(1E7)	
TS		+3.5E7	+28%,3.9E7	Ibid.
			(1E7)	
TS			+151%,1.1 <b>E</b> 8	Ibid.
			(1E7)	
TS			+37%,5.3E8	Ibid.
•			(1E7)	
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			·	

Material: Fluorocarbon, Viton A

material: Fluorocardon, Viton A				
Property		Radiation Dat		Other Information*
	LTD (rads) (LTDR (rads) hr)		$\begin{pmatrix} CD & (rads) \\ -CDR & (rads) \\ hr \end{pmatrix}$	)
TS			<b>-20%,</b> >1E8	Parkinson, W. W., Nucl. Engr. and Design, Vol. 17, 1971, p. 273
EL			-20%,7E6	Ibid.
TS	<sup>-</sup> 4.4E6		-10%,1.7E7	Kircher, J.F., and Bowman, R.E., (ed.), Effects of Radia-tion on Materials and Components, Reinhold Publ.Corp., 1964.
EL			-40%,1.7E7	Ibid.
TS	5E7	+6E7		Goetzel, C.G. and Singletary, J.B., Space Materials Handbook, Lockheed Missiles and Space Corp., January, 1962, p. 335.
EL	-	5E6	-50%,1E7	Ibid.
EL			+172% <b>,</b> 2E6	In Argon/Makhlis, F. A., Rad. Phys. and Chem. of Polymers, Wiley, 1975, p. 245
EL	Ī	ŀ	+63%,5E6	Ibid.
EL		ŀ	+208%,8.7E5	In Hydraulic Oil/Ibid.
EL		ŀ	+211%,4.4E6	Ibid.
EL		ŀ	+117%,1.7E7	Ibid.
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CLASS: ELASTOMER

Material: Fluorocarbon - Viton A Property Radiation Data Other Information\* 25CD (rads) (rads) CD (rads) (LTDR (rads) (25CDR(<u>rads</u>)) CDR (rads) +5%,5E/17 TS 5**E**6 Van de Voorde, M. H., and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 82. TS +2%,1E8 Ibid. TS -10%,3E8 Ibid. TS -20%,6E8 Ibid. 5**E**6 EL 2.2E7 -10%,1E7 Ibid. EL -20%,1.8E7 Ibid. EL -40%,3.5E7 Ibid. EL -50%,5E7 Ibid. EL -75%,1.5E8 Ibid. EL -80%, 3E8 Ibid. HD **5E6** +6E8 +5%,1E7 Ibid. HD +15%,1E8 Ibid. HD +20%, 3E8 Ibid. OC. E, 3 Mev, Electron Fluence/ >1E13 In Air/Bouquet, F. L., and Koprowski, E. F., Jupiter Radiation Effects on Spacecraft Materials, 19th IEEE Annual Conf. on Nucl. and Space Radiation Effects, Las Vegas, VN, July 21, 1982, p. 3.

Material: Fluoropolymer, Halar: Supplier; Allied Chemical

material:	1140,00013		· · · · · · · · · · · · · · · · · · ·	illed Chemica:
Property		Radiation Date		Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ -\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	
EL	1E7	1.5E7	-63%,4.7E7	G/In Air/E-CTFE,
	(1E7)	(1E7)	(1E7)	Allied Chemical/ Schonbacher, H., and Stolarz-Izycka, A., Compilation of Radia- tion Damage Test Data, Part I, CERN 79-04, 18 Jure 1979, p. 73.
EL			-65%,1.2E8	Ibid.
			(1E7)	
EL			-73%,1.9E8	Ibid.
			(1E7)	
EL			-95%,5.4E8	Ibid.
			(1E7)	
HD	2E7		-15%,7.9E7	Ibid.
·	(1E7)	·	(1E7)	
HD			-17%,5.3E8	Ibid.
			(1E7)	
TS	1E7	1.5E7	-46%,2.7E7	Ibid.
	(1E7)	(1E7)	(1E7)	
TS		1	-60%,5.5E7	Ibid.
		1	(1E7)	
TS		l	-59%,1.7E8	Ibid.
		]	· (1E7)	
TS	, )	l	-57%,5.4E8	Ibid.

Material: Fluorosilicone

Property	. 1201031110	Radiation Dat	Other Information*	
	LTD (rads)	25CD (rads)		
TS	1E6	1.8E6	-50%,5E6" /	Van de Voorde, M. H., and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p.81.
TS	1		-75%,3E7	Ibid.
TS			-80%,8E7	Ibid.
EL	1E6	4E6	-45%,1E7	Ibid.
EL	l		-75%,4E7	Ibid.
EL	·		-90%,7E7	Ibid.
HD	1E6	+3E7	+5%,4E6	Durometer Hardness/Van de Voorde, M. H., and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 81.
HD			+10%,1E7	Ibid.
HD	-		+50%,7E7	Ibid.

Material: Nitrile elastomer Buna N

naterial:	Mitrile ela	Scomer bund i	1	
Property		Radiation Data		Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> ))	$\binom{CD}{CDR} \left( \frac{rads}{hr} \right)$	
TS	3E7	<b>7E8</b>	+10%, 6E7	Van de Voorde, M.H., and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, European Organization for Nuclear Research, CERN 72-7, May 17, 1972, p. 84.
TS			+20%, 1E8	Ibid.
TS		,	+45%, 3.5E8	Ibid.
TS			+10%, 5E8	Ibid.
TS			-20%, 6E8	Ibid.
EL	3E6	2E7	-30%, 3E7	Ibid.
EL			-50%, 6E7	Ibid.
EL			-60%, 1E8	Ibid.
EL			-75%, 2E8	Ibid.
EL			-85%, 3E8	Ibid.
SB	3E6	2E7	-10%, 1E7	Ibid.
SB			-20%, 1.8E7	Ibid.
SB			-50%, 6E7	Ibid.
SB			-60%, 1E8	Ibid.
SB			-70%, 1.5E8	Ibid.
SB			-75%, 2E8	Ibid.
SB	·		-80%, 2.5E8	Ibid.
SB			-85%, 3E8	Ibid.

Material: Nitrile elastomer Buna N

Material: Nitrile elastomer Buna N				
Property		Radiation Dat		Other Information*
	$ \begin{pmatrix} LTD & (rads) \\ LTDR & (rads) \\ hr \end{pmatrix} $		$\begin{pmatrix} \text{CD} & (\text{rads}) \\ -\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	
CS	2E6	6E6	-10%, 3E6	Van de Voorde, M. and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, European Organization for Nuclear Research Report No. CERN 72-7, 1972, p. 84.
CS			-20%, 4E6	Ibid.
CS			-30%, 7E6	Ibid.
CS			-40%, 1E7	Ibid.
CS			-50%, 1.5 E7	Ibid.
· CS			-75%, 1E8	Ibid.
CS			-85%, 3E9	Ibid.
HD	4E7	+2.5E8	+15%, 1E8	Ibid.
HD	,		+30%, 3E8	Ibid.
HD			+40%, 1E9	Ibid.
CS -		<b>7E6</b>		Rads(C)/Nuclear and Space Radiation Effects on Materials, NASA SP-8053, June 1970, p. 33.
EL	2E6		-50%, 7E7	Ibid.
Unstated		<b>4</b> E6		Baur, J.F., Radiation Damage Limit for Diagnostic Components, General Atomic Co., July 1981, p. 13.

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CLASS: ELASTOMER

Material: Nitrile, Hycar OR-15

material: Hitrite, hydriok-15					
Property	·	Radiation Data		Other Information*	
	LTD (rads) (LTDR (rads) hr)		$\begin{pmatrix} CD & (rads) \\ -CDR & (rads) \\ hr \end{pmatrix}$		
TS	3E7	+1.6E8	+50%,3.5E8	Goetzel, C. G., and Singletary, J. B., Space Materials Handbook, Lockheed Missiles and Space Corp., January 1962.	
EL	2.3E6	1.6E7	-50%,6.4E7	Ibid.	
_v CS	1.5E6	7E6	-50%,1.7E7	Ibid.	
TS			-20%,7E8	Parkinson, W. W., Nucl. Engr. and Design, Vol. 17, 1971, p. 272	
EL			-20%,1E7	Ibid.	
HD			-20%, 1E10	Ibid.	
CS			-20%,1E7	Ibid.	
EL	-		-50%,1E8	In Helium/Bopp, C. D., and Sisman, O., Radiation Stability of Plastics and Elastomers, Nucleonics, Vol. 13, No. 3, July 1955, p. 28.	
	·				
j					

Material:	Nitrile	rubber,	NBR
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Property	Nitrile rubbe	Radiation Date	<u> </u>	Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR(rads)	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ -\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	,
CS	1E6			King, R.W., et al, The Effect of Nuclear Radiation on Elasto- meric and Plastic Com- ponents and Materials, Battelle Memorial In- stitute Radiation Rad- iation Effects Infor- mation Center Report REIC 21, 1961, and Addendum 1964.
Material:	Polyacryla	te		
HD	1E7	+2E8	+12%,1E8	Van de Voorde and Restat,C.,Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p.79.
			+50%,1E9	Ibid.
SB	1E6			King, R.W., REIC 21, 1961 and Addendum, 1964
Material:	Polyacryla	te ACM		
SB	1E6	3E6		Bolt, R.O. and Carroll, J.G., Rad-iation Effects on Organic Materials, Academic Press, 1963.
CS	1.5E6	1 E 7		Ibid.
TS	4.E6			Ibid.
	1	1		

Material: Polyacrylic

Material:	Polyacryl	1 C		
Property		Radiation Date		Other Information*
	LTD (rads) (LTDR (rads)			
TS	5E6	5E7	-5%,1E7	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 79.
TS		Í	-40%,1E8	Ibid.
TS			-50%,1.5E8	Ibid.
TS			-60%,2E8	Ibid.
EL	3E 6	2E7	-50%,4E7	Ibid.
EL			-75%,1E8	Ibid.
EL			-90%,5E8	Ibid.
SB	1.5E6	+3.8E6		Ibid.
SB			+45%,6E6	Ibid.
SB			+40%,1E7	Ibid.
SB	•	3.2E7	+0%,3E7	Ibid.
SB			-75%,3.5E7	Ibid.
SB	·		-90%,4E7	Ibid.
CS	3E6	+1E7		Ibid.
CS		·	+30%,3E7	Ibid.
CS		4.5E7	+5%,3.5E7	Ibid.
CS			-50%,1E8	Ibid.

Material: Polyacrylic Hycar PA-21

Material:	Polyacrylic	Hycar PA-2	<b>41</b>	
Property		Radiation Date		Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} CD & (rads) \\ CDR & (\frac{rads}{hr}) \end{pmatrix}$	
TS		·	-20%,6E7	Parkinson, W. W., Nucl. Engr. and Design, Vol. 17, 1971, p. 272
EL	-		-20%,2.2E7	Ibid.
CS			-20%,8E6	Ibid.
EL			-50%,1E8	In Air/Bopp, C. D., and Sisman, O., Radiation Stability of Plastics and Elastomers, Nucleonics, July, 1955, p. 28.
Material:	Polybutadi	iene		
TS			-20%,8E8	Parkinson, W.W., Nucl. Engr. and Design, Vol.17,1971, p.272.
EL			-20%,1E8	Ibid.
TS			-30%,1.7E8	Filler/ Kircher, J.F., Effects of Radaiation on Materials and Components, Reinhold, 1964.
£L			-69%,1.7E8	Filler/Ibid.
cs	1E6			Ibid.
EL			-50%,1E8	In Helium/Bopp,C.D., and Sisman,O.,Radiation Stability of Plastics and Elastomers, Nucleon-cics, Vol. 13, No.3, July. 1955.,p. 28.

Material: Polybutadiene- cable insulation

Property	Polybutadie	ne- cable 1 Radiation Dat		Other Information*
TI OPET LY	LTD (rads)	25CD (rads)		
TS		1E6	-40%,1E7	Van de Voorde and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, P. 79.
TS			-50%,1.8E7	Ibid.
TS			-60%,2E7	Ibid.
TS		,	-70%,4E7	Ibid.
TS			-80%,6E7	Ibid.
TS			-90%,8E7	Ibid.
EL		5E5	-45%,3.5E6	Ibid.
EL			-50%,4.5E6	Ibid.
EL		į	-70%,1.5E7	Ibid.
EL			-80%,2E7	Ibid.
EL			-90%,4E7	Ibid.
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CLASS: ELASTOMER

Material: Polychloroprene

material:	PUTYCHTOT	oprene		
Property		Radiation Dat	8	Other Information*
	LTD (rads)	A	$\begin{array}{c} CD & (rads) \\ (-CDR & (rads)) \end{array}$	
TS		2.5E7	1-15%, i. 1E7	G/In Air/Gillen, K. T., and Clough, R. L., Occurrence
		(1.4E3)	(1.4E3)	and Implication of Radiation Dose-Rate Effects in Material Aging Studies, NUREG/CR-2157, SAND80-1796RV, August 1981, P. 15.
TS	1.		-27%,3E7	Ibid.
			(1.4E3)	
TS			-45%,5E7	Ibid.
			(1.4E3)	
EĻ		1.6E7	-20%,1.3E7	Ibid.
		(1.4E3)	(1.4E3)	
EL			-55%,3E7	Ibid.
		·	(1.4E3)	
EL			-76%,4.2E7	Ibid.
			(1.4E3)	
EL			+426% <b>,</b> 1.9E7	In Air/27°C/Makhlis, F. A., Rad. Phys. and Chem. of Polymers, Wiley, 1975, p. 248.
EL			+405%.1.9E7	In Vac./27°C/Ibid.

Material: Polychloroprene

material:	Polyculorop			•
Property		Radiation Dat		Other Information*
	(LTDR (rads) (LTDR (rads) hr)		$ \begin{array}{c} \text{CD} & (\text{rads}) \\ \text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{array} $	
TS		2.4E7	-9%,7.0E6	G/In Air/Gillen,K.
		(8.4E3)	(8.4E3)	T. and Clough,R.L., Occurrence and Im-
				plication of Radia- tion Dose-Rate Eff-
				ects in Material
	-			Aging Studies, NUREG/ CR-2157,SAND 80-1976
			,	RV, August, 1981,p.16
TS			-39%,5.3E7	Ibia.
		,	(8.4E3)	
TS			-48%,9.7E7	Ibid.
			(8.4E3)	
TS			-56%,1.5E8	Ibid.
			(8.4E3)	
EL		2.5E7	-8%,6.2E6	Ibid.
		(8.4E3)	(8.4E3)	
EL	-		-28%,2.6E7	Ibid.
			(8.4E3)	
EL			-73%,5.0E7	Ibid.
			(8.4E3)	
EL			-80%,9.7E7	Ibid.
			(8.4E3)	
EL			-99%,1.5E8	Ibid.
			(8.4E3)	
		į		

Material: Polychloroprene

	Polychloropi			
Property		Radiation Data		Other Information*
	LTD (rads) (LTDR (rads)	25CD (rads) (25CDR( <u>rads</u> ))	$\binom{\text{CD}}{\text{CDR}} \left( \frac{\text{rads}}{\text{hr}} \right)$	
TS		4.5E7	-12%,1.7E7	G/In Air/Gillen, K. T., and Clough, R. L., Occurrence
		(4.7E4)	(4.7E4)	and Implication of Radiation Dose-Rate Effects in Material Aging Studies, NUREG/CR-2157, SAND80-1796RV, August 1981, p. 15.
TS			-32%,6.4E7	Ibid.
			(4.7E4)	
TS			-35%,1.25E8	Ibid.
			(4.7E4)	
EL		2.3E7	-18%,1.7E7	Ibid.
		(4.7E4)	(4.7E4)	
EL			-50%,5E7	Ibid.
			(4.7E4)	
EL			-68%,7.5E7	Ibid.
τ			(4.7E4)	
EL			-80%,1E8	Ibid.
			(4.7E4)	
EL			-90%,1.25E8	Ibid.
			(4.7E4)	
				<b>I</b> .

Material: Polychloroprene

na ceria:	rolycnloro	•		
Property	172 7	Radiation Da		Other Information*
	LTD (rads (LTDR (rads	25CD (rads ) (25CDR( <u>rads</u> hr	$\begin{array}{c} \begin{array}{c} \text{CD} & (\text{rads}) \\ \text{CDR} & \frac{\text{rads}}{\text{hr}} \end{array}$	),
TS			-4%,9E6	G/In Air/Gillen, K. T., and
·		·	(2.0E5)	Clough, R. L., Occurrence and Implication of Radiation Dose-Rate Effects in Material Aging Studies, NUREG/CR-2157, SAND 80-1796 RV, August 1981, p. 16.
TS			-7%,2.0E7	Ibid.
			(2.0E5)	
TS			-7%,4.9E7	Ibid.
			(2.0E5)	·
TS .	ļ		-7% <b>,</b> 1.4E8	Ibid.
			(2.0E5)	
EL		2.1E7	-11%,1.3E7	Ibid.
		(2.0E5)	(2.0E5)	
EL			-22%,2.0E7	Ibid.
			(2.0E5)	
EL			-48%,4.8E7	Ibid.
			(2.0E5)	
EL			-72%,8.5E7	Ibid.
			(2.0E5)	
. EL			-85%,1.4E8	Ibid.
			(2.0E5)	
				·

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CLASS: ELASTOMER

Material: Polychloroprene

Material:	Polychlorop			•
Property		Radiation Dat		Other Information*
	LTD (rads) (LTDR (rads)	25CD (rads) (25CDR(rads) hr	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ -\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	10/7- 1/2/0/33 K. T
TS	1.7E7 (9.1E5)	·		G/In Air/Gillen, K. T., and Clough, R. L., Occurrence and Implication of Radiation Dose-Rate Effects in Naterial Aging Studies, NUREG/CR-2157, SAND80-1796RV, August 1981, p. 15.
TS			+1%,6.9E7	Ibid.
		-	(9.1 E5)	
TS			+5%,9.5E7	Ibid.
, •	·	1	(9.1 E5)	
TS			+10%,1.5E8	Ibid.
			(9.1 E5)	
EL		2.3E7	-12%,1.7E7	Ibid.
		(9.1 E5)	(9.1 E5)	·
EL	ı		-50%,5.2E7	Ibid.
			(9.1 E5)	
EL			-75%,9.5E7	Ibid.
			(9.1 E5)	
EL	·		-86%,1.5E8	Ibid.
			(9.1 E5)	
•				

Material: Polychloroprene, Neoprene; Supplier: Fleten and G.

	•	· -	; supprier: Fi	eten and G.
Property		Radiation Date		Other Information*
	LTD (rads) (LTDR (rads)	25CD (rads) (25CDR( <u>rads</u> )	$\begin{pmatrix} CD & (rads) \\ -CDR & (\frac{rads}{hr}) \end{pmatrix}$	•
EL		-5E7	-10%,3.8E7	G/In Air/Jacket/Schonbacher,
:		(1E7)	(1E7) 	H., and Stolarz-Izycka, A., Compilation of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979, p. 99.
EL			-44%,7.5E7	Ibid.
		·	(1E7)	
EL			-91%,1.4E8	Ibid.
	·		(1E7)	
EL			-98%,5.2E8	Ibid.
	·		(1E7)	•
HD		+3.2E7	+50%,5E7	Ibid.
		(1E7)	(1E7)	· .
HD			+95%,1.0E8	Ibid.
÷			(1E7)	
TS		2.5E7	-34%,4.5E7	Ibid.
•		(1E7)	(1E7)	
TS			-37%,1.0E8	Ibid.
			(1E7)	
. TS			-12%,2.6E8	Ibid.
			(1E7)	
TS		+3.5E8	<b>+87%,</b> 5.3E8	Ibid.
		(1E7)	(1E7)	•

Material: Polychloroprene, Neoprene Jacket; Supplier: Pirelli

naterial.	•	-	e Jacket, Supp	•
Property		Radiation Dat		Other Information*
	LTD (rads) (LTDR (rads)	25CD (rads) (25CDR(rads) hr	$\binom{CD}{CDR} \left( \frac{rads}{hr} \right)$	<b>a</b> r
EL	1	1.8E7	-48%,3.7E7	G/In Air/Schonbacher, H.,
		(1E7)	(1E7)	and Stolarz-Izycka, A., Compilation of Radiation Damage Test Data, Part I, CERN 79-04, 18 June 1979, p. 99.
EL			-81%,9.3E7	Ibid.
	ĺ		(1E7)	
EL			-94%,1.9E8	Ibid.
	İ		(1E7)	
EL			-97%,5.0E8	Ibid.
		i	(1E7)	
HD		<b>45</b> E7	+31%,3.9E7	Ibid.
		(1E7)	(1E7)	
HD			4102%,1.0E8	Ibid.
			(1E7)	
HD			+344%,5.1E8	Ibid.
			(1E7)	
TS		4E7	-27%,4.5E7	Ibid.
		(1E7)	(1E7)	
· TS		+2.5E8	+4%,1.5E8	Ibid.
		(1E7)	(1E7)	
TS			+90%,5.2E8	Ibid.
		*	(1E7)	

CLASS: ELASTOMER

material rolycnioroprene, Neoprene	Material	Polychloroprene, Neoprene
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material rolythiologiche, heopiehe				
Property		Radiation Dat		Other Information*
TS	LTD (rads) (LTDR (rads) hr)		_CD (rads) )(_CDR ( <u>rads</u> ))   -35%,1E8	Van de Voorde, M. H., and Restat, C., Selection Guide to Organic Materials for Nuclear Engineering, CERN 72-7, May 17, 1972, p. 83.
TS			-50%,2E8	Ibid.
TS		,	-60%,3.5E8	Ibid.
TS			-75%,1E9	Ibid.
EL	4E6	2E7	-20%,1.5E7	Ibid.
EL			-50%,4.5E7	Ibid.
El			-75%,1E8	Ibid.
El			-90%,3E8	Ibid.
SB	4E6	<b>2</b> E7	-20%,1.5E7	Ibid.
SB			-50%,4.5E7	Ibid.
SB			-75%,1E8	Ibid.
SB			-90%,3E8	Ibid.
CS	2E6	5E6	-50%,1.3E7	Ibid.
CS			-75%,1E8	Ibid.
CS			-75%,5E8	Ibid.
CS			-80%,1E9	Ibid.
. HD	2E7		+5%,1E8	Ibid.
HD			+20%,1E9	Ibid.
		·		

**CLASS:** 

Material: Polychloroprene, Neoprene

Property		Radiation Date	<b>a</b>	Other Information*
	$ \begin{pmatrix} \text{LTDR} & \left(\frac{\text{rads}}{\text{hr}}\right) \end{pmatrix} $	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ \text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	
EL	2.5E14	1.5E15	-50%, 3E15	Fast Neutrons, Fluence/In Air/ Calkins, V.P., Radiation Damage to Non-Metallic Materials, APEX-167, General Electric, August 1954, p. 21.
EL			-88%, 2E16	Ibid.
EL			-75%, 7E15	Ibid.
TS	1E15	3E15	-50%, 1E16	Ibid.
TS	·		-60%, 2E16	Ibid.
TS		·	-75%, 1E17	Ibid.
TS			-70%, 3E17	Ibid.
EL			-50%, 6E7	In Air/Bopp, C.D., and Sisman, O., Radiation Stability of Plastics and Elastomers, Nucleonics, July, 1955, p. 28.
CS		4E6		Rads (c)/Nuclear and Space Radiation Effects on Materials, NASA SP-8053, June 1970, p. 33.
Unstated		6E6		Baur, J.F., Radiation Damage Limit for Diagnostic Components, General Atomic Co., July, 1981, p. 9.

Material:	Polychloroprene, Neopren	e GN	
. EL		-50%, 1E8	In Helium/Bopp, C.D., and Sisman, O., Radiation Stability of Plastics and Elastomers, Nuclonics, Vol. 13, No., July 1955, p. 28.

Material: Polychloroprene, Neoprene W
Property Radiation Data Other Infor

Property Radiation Data Other Information*				
Property	LTD (rads)	25CD (rads)	CD (rads)	Other Information
		(25CDR(rads))	$\left(\frac{\text{CDR}}{\text{CDR}}\left(\frac{\text{rads}}{\text{hr}}\right)\right)$	
	$\binom{\text{LTDR}}{\text{hr}}$	( hr)	ハー し <del>hr</del> リノ	4
TS		·	-20%,2E7	Parkinson, W. W., Nucl. Engr. and Design, Vol. 17, 1971, p. 273
EL			-20%,8E6	Ibid.
HD			-20%, 1E10	Shore hardness/ Ibid.
CS			-20%,9E5	Ibid.
CS			-50%, 8E6	Ibid.
EL			-7%,5E6	Blodgett,R.B.,and Fisher,R. G.,IEEE Trans. on Power Apparatus and Systems,Vol. PSA-88,No.5, 1969,p.529.
EL			-54%,5E7	Ibid,
CS	8.7E7			Aromatic filler/Ibid.
TS	1.1E7	7.3E7	-50%,1.8E8	Goetzel, C. G., and Singletary, J. B., Space Materials Handbook, Lockheed Missiles and Space Corp., January 1962, p. 335.
EL	4.5E6	2E7	-50%,4.5E7	Ibid.
CS	- 2E6	5.5E6	-50% <b>,</b> 1.4E7	Ibid.

Material:	Polysulfide,	Thiokol
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material:	POLYSULTI	ae, intokoi		
Property		Radiation Dat		Other Information*
		25CD (rads) (25CDR( <u>rads</u> )		
EL		·	-50%,1E8	In Helium/Bopp, C. D., and Sisman, O., Radiation Stability of Plastics and Elastomers, Nucleonics, Vol. 13, No. 3, July 1955, p. 28.
Unstated		1E6		Baur, J. F., Radiation Damage Limit for Diagnostic Components, General Atomic Co., July, 1981, p. 13.
Material	: Polysul	fide, Thiok	ol ST	
ST			-20%,7E7	Parkinson, W.W., Nucl. Engr. and Design, Vol.17,1971,p.273.
EL			-20%,5E6	Ibid.
CS			-20%,6E5	Ibid.
TS			-50%, 7E7	King,R.W., et al., REIC Report 21,,
				1961 and Addendum, 1964.
EL	5E5	4E6	-50%, 8E7	Ibid.
HD	3E5		-	Ibid.
CS	6E5			Ibid.
EL			-50%,1E8	In Air/Bopp,C.D., and Sisman,O., Radia-tion Stability of Plastics and Elast-omers, Nucleonics, July, 1955mp.28.

CLASS: ELASTOMER
Material: Silicone

material:	Stitcone			
Property		Radiation Date		Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ (\text{CDR} & (\text{rads})) \\ \end{pmatrix}$	]
Unstated		4E6	,	Baur, J.F., Radiation Damage Limit for Diag- nostic Components, General Atomic Co. July 1981, p. 13.
СХ	·	<b>4E</b> 6		Rads(C)/Nuclear and Space Radiation Effects on Materials, NASA-SP-8053, June 1980, p. 33.
FS			-50%, 8E6	(C)/Kamen, R.E., Radiation Effects on HS-350 Materials, Vol. I, Natural Space Radiation, Report 74-87, Hughes Aircraft Co., April 1974, p. 6-15.
CL		·	-50%, 8E6	Ibid.
OC	1.2E13			P, 144 Mev, protons-cm <sup>-2</sup> / In Air/Parker, R. H., Jupiter's Radiation Belts and their Effects on Space- craft, JPL Tech. Memo 33-708, October 15, 1974, p. 25.
TS	7E6		-50%, 7E7	Van de Voorde, M.H., and Restat, C., CERN 72-7, May 17, 1972.
1	l l			

Material: Silastic 250

Property		Radiation Data	<u> </u>	Other Information*
	LTD (rads) (LTDR (rads)	$\binom{25\text{CD} (\text{rads})}{\binom{25\text{CDR}}{\text{hr}}}$	$\binom{CD}{-CDR} \binom{rads}{hr}$	
EL			-50%, 1E8	In Helium/Bopp, C. D., and Sisman, O., Radiation Stability of Plastics and Elastomers, Nucleonics, Vol. 13, No. 3, July 1955, p. 28.

Material:	Silicone, S	ilastic 7-710		
TS	1.3E6	5.3E7	-50%,1.7E8	Goetzel, C. G., and Singletary, J. B., Space Materials Handbook, Lockheed Missiles and Space Corp., January 1962, p. 335.
EL	1.5E6	7.5E6	-50%,1.8E7	Ibid.
CS	1.3E6	4.2E6	-50%,1E7	Ibid.
EL			-50%,6E7	In Air/Bopp, C. D., and Sisman, O., Radiation Stability of Plastics and Elastomers, Nucleonics, July, 1955, p. 28.
		•		

Other Information\*

CLASS:

ELASTOMER

Material: Silicone, Silastic 7-710

P	ro	De	rtv

	F	adiation	Data		
LTD (LTDR	(rads)	25CD (ra (25CDR(ra	ids) ids))(	CD CDR	(rads)

TS			-20%,6E7	Parkinson, W. W., Nucl. Engr. and Design, Vol. 17, 1971, p. 273
EL			-20%,9E6	Ibid.
HD	•	·	<b>-20%,</b> 1E9	Shore hardness test/ Ibid.
cs			-20%,1E6	Ibid.

Material: Silicone elastomer, dimethyl siloxane

TS	1E6	5E7	+15%,5E6	Van de Voorde,M.H., and Restat,C.,Select- ion Guide to Organic Materials for Nucl- ear Engineering, CERN 72-7,May 17,1972,p.86.
TS			+10%,1E7	Ibid.
TS			-10%,3E7	Ibid.
TS	-		-40%,1E8	Ibid.
TS			-50%,2E8	Ibid.
EL	2E6	7E6	-10%,5E6	Ibid.
EL			-50%,2E7	Ibid.
EL		·	-75%,3.5E7	Ibid.
EL			-90%,1E8	Ibid.

Material: Silicone elastomer, dimethyl siloxane

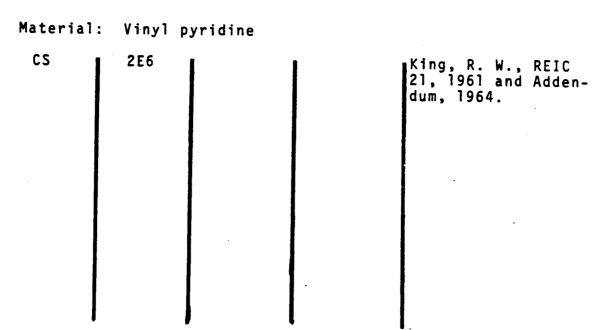
Property		Other Information*		
	LTD (rads)	Radiation Dat 25CD (rads)	CD (rads)	001107 2117 01 1110 0 1017
	(LTDR (rads)	$\binom{25\text{CDR}}{\text{hr}}$	$\left(\frac{-CDR}{hr}\left(\frac{rads}{hr}\right)\right)$	4
ŞB	3E6	1.5E7	-50%,4E7	Van de Voorde,M.H., and Restat,C.,Select- ion Guide to Organic Materials for Nuclear Engineering,CERN 72-7, May 17,1972,p.86
SB			-75%,1E8	Ibid.
CS	1E6	5E6	-45%,1E7	Ibid.
CS			-75%,3E7	Ibid.
CS			-90%,5E7	Ibid.
HD	1E6	+2E7	+10%,4E6	Ibid.
HD	# 	·	+20%,1E7	Ibid.
HD			+30%,3E7	Ibid.
HD			+40%,5E7	Ibid
HD			+45%,7E7	Ibid.
HD			+50%,1E8	Ibid.
İ				

Material: Silicone, SKN-40

Material:	Silicone,	SKN-40		
Property		Radiation Dat	a	Other Information*
	LTD (rads)	25CD (rads)	$\begin{pmatrix} CD & (rads) \\ -CDR & (rads) \\ hr \end{pmatrix}$	1
TS	3E7		-17%,1E8	G/Makhlis, F. A., Rad. Phys. and Chem. of Polymers, Wiley, 1975, p. 240.
TS			-10%,2E8	Ibid.
TS			-5%,3E8	Ibid.
TS	,		+40%,5E8	Ibid.
TS	<b>≼</b> 3E6		+10%,1E7	G/Makhlis, F. A., Rad. Phys. and Chem. of Polymers, Wiley, 1975, p. 240.
TS			+20%,1.4E7	Ibid.
TS			+19%,3E7	Ibid.
TS			+10%,5E7	Ibid.
TS			-5%,1E8	Ibid.

Material: Silicone-UMQ

Property	Rad	iation Data	Other Information*
	LTD (rads) 29	5CD (rads) CD (rads) 5CDR(rads) (CDR (rads)	)
EL		-10%,5E6	Blodgett, R.B., and Fisher, R.G., "Insulations and Jackets for Control and Power Cables in Thermal Reactor Nuclear Generating Stations, IEEE Trans. Power Apparatus and Systems, Vol. PAS-88, No. 5, p. 529, 1969.
EL		-66%,5E7	Ibid.
CS		-31.4%,1E7	Ibid.
TS		-50%,5E7	Ibid.
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CLASS: LUBRICANT

Material:

Property		Radiation Data	Other Information*	
VS	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> )) +5.2E8	CD (rads) (-CDR ( <u>rads</u> )) +3%,1E8	G/In Helium, Radiat. Temp. 75°F, Meas. Temp. 100°F/ Bolt, R.O., and Carroll, J.G., Radiat. Effects on Organic Materials, Academic, 1963, p. 354.
VS			+23%, 5E8	Ibid.

Alkylaromatics, n-nonylbenzene

Material:	Alkylaromatics,	di-n-nonylbenzene	_
VS		+61%,5E8	G/In Helium, Radiat. Temp. 75°F, Meas. Temp. 100°F/Bolt, R.O., and Carroll, J.G., Radiat. Effects on Organic Materials, Academic, 1963, p. 354.

Material:	Alkylaromat	tic, 1, 6, - d	liphenylhexane	
VS			+3.8%,1E8	G/In Helium, Radiat. Temp. 75°F, Meas. Temp. 100°F/Bolt, R.O., and Carroll, J.G., Radiat. Effects on Organic Materials, Academic, 1963, p. 354.
VS			+17%, 5E8	

CLASS: LUBRICANT

Material: Alkylaromatics, 1, 9, - diphenylnonane

Property	Radiation Data			Other In	formation*
	LTD (rads) (LTDR ( <u>rads</u> )	25CD (rads) (25CDR( <u>rads</u> ))	hrll		
VS		+5E8	+5.3%,1E8	75 <sup>0</sup> F, Me Bolt, R. J.G., Ra	ium, Radiat. Temp. eas. Temp. 100°F/ O., and Carroll, diat. Effects on Materials, Academic, 354.

Material: Alkylaromatic, 1, 10-diphenyldecane

VS		+12.3%,1E8	G/In Helium, Radiat. Temp. 75°F, Meas. Temp. 100°F/Bolt, R.O., and Carroll, J.G., Radiat. Effects on Organic Materials, Academic, 1963, p. 354.
VS		+46%,5E8	Ibid.

Material: Alkylaromatic sec-octyl-n-decylbenzene

	•	-	_	
VS			+1.3%,1E8	G/In Helium, Radiat. Temp. 75°F, Meas. Temp. 100°F/Bolt, R.O., and Carroll, J.G., Radiat. Effects on Organic Materials, Academic, 1963, p. 354.
VS			+20%,5E8	Ibid.
		•		

Material: Alkylbiphenyl oils

Property	Radiation Da	ıta	Other Information*
	LTD (rads) 25CD (rads (LTDR (rads)) (25CDR(rads)hr	INTCDR / rads \ \	•
<b>V</b> S		+8%, 0.8E8	G, In Helium, Irradiation at 75°F, Meas. Temp. 210°F/Bolt, R.O., and Carroll, J.G., Radiation Effects on Organic Materials, Academic, 1963, p. 354.
VS		+64%, 8.3E8	Ibid.
VS		+11%, 0.8E8	G, In Helium, Radiation Temp. 75 <sup>0</sup> F, Meas. Temp. 100 <sup>0</sup> F/ Ibid.
VS		+111%,8.3E8	Ibid.

Material: Alkyl(diphenyl ether) C<sub>14-16</sub>

VS	+1.1E8	+8%, 8E7	G/In Air, Radiation Temp. 75°F, Meas. Temp. 100°F/Bolt, R.O. and Carroll, J.G., Radiation Effects on Organic Materials, Academic, 1963, p. 361.
VS		+39%, 2.4E8	Ibid.
VS		+195%,8.3E8	Ibid.
VS		+6%, 8E7	G/In Air, Radiation Temp. 75 <sup>0</sup> F, Meas. Temp. 210 <sup>0</sup> F/Ibid.
VS	+2.3E8	+26%, 2.4E8	Ibid.
VS		+108%,8.3E8	Ibid.
VS	+4.5E8	-4%, 8E7	G/In Air, Radiation Temp. 75 <sup>0</sup> Fm Meas. Temp. 400 <sup>0</sup> F/Ibid.
VS		+53%, 8.3E8	Ibid.

CLASS:

LUBRICANT

Material:

Material: Aromatic extract oil, general

Property	Radiation Data	1	Other Information*
	LTD (rads) 25CD (rads) $ \begin{pmatrix} \text{LTDR} & \frac{\text{rads}}{\text{hr}} \end{pmatrix} \begin{pmatrix} 25CDR & \frac{\text{rads}}{\text{hr}} \end{pmatrix} $	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ \left( \frac{\text{CDR}}{\text{hr}} \right) \end{pmatrix}$	
VS		+83%, 5E8	In Air, 100 <sup>0</sup> F/Wills, J.G., Nuclear Power Plant Techno- logy, Wiley, 1967, p. 241.
VS -		+47%, 5E8	In Air, 210 <sup>0</sup> F/Wills, J.G., Nuclear Power Plant Techno- logy, Wiley, 1967, p. 241.

Material: Aromatic, partially hydrogenated

VS		+22%, 1E9	In Air, 200 <sup>0</sup> F/Wills, J.G., Nuclear Power Plant Techno- logy, Wiley, 1967, p. 244.
VS	İ	+20%, 1E9	In Air, 200 <sup>0</sup> F/Ibid.
VS		-18%, 1E9	In Air, 300 <sup>0</sup> F/Ibid.
VS		+15%, 1E9	In Air, 400 <sup>0</sup> F/Ibid.
VS		+13%, 1E9	In Air, 450 <sup>0</sup> F/Ibid.
VS.		+11%, 1E9	In Air, 500 <sup>0</sup> F/Ibid.
VS		+6%, 1E9	In Air, 550 <sup>0</sup> F/Ibid.
VS		0%, 1E9	In Air, 600 <sup>0</sup> F/Ibid.
vs		-5%, 1E9	In Air, 625 <sup>0</sup> F/Ibid.
VS		-10%, 1E9	In Air, 650 <sup>0</sup> F/Ibid.
j			

Material: Bearing lubricant, general

Property		Radiation Dat		Other Information*
	LTD (rads) (LTDR (rads) hr)		$\begin{pmatrix} CD & (rads) \\ -CDR & (\frac{rads}{hr}) \end{pmatrix}$	•
oc	>1E13			E, 3 Mev, Electron Fluence/ In Air/Bouquet, F.L., and Koprowdki, E.F., Jupiter Radiation Effects on Space- craft Materials, 19th IEEE Annual Conf. on Nuclear and Space Radiation Effects, Las Vegas, NV, July 21, 1982, p. 3.
VS		•	+100%, 6E12	E, 20 Mev, Electron Fluence/ In Air/Bouquet, F.L., and Koprowski, E.F., Jupiter Radiation Effects on Space- craft Materials, 19th IEEE Annual Conf. on Nuclear and Space Radiation Effects, Las Vegas, NV, July 21, 1982, p. 3.
Material:	Bearing lub	ricant, synth	etic aromatic	В
VS			+70% <b>,</b> 1E9	In Air, 100 <sup>0</sup> F/Wills, J.G., Nuclear Power Plant Technology, Wiley, 1967, p. 250.
VS			+45%, 1E9	In Inert Atmosphere, 100 <sup>0</sup> F/ Ibid.

Material: Bearing lubricant, synthetic aromatic/polymer

VS		+20%, 1E9	In Air, 100°F/Wills, J.G., Nuclear Power Plant Technology, Wiley, 1967, p. 250.
VS		+58%, 1E9	In Inert Atmosphere, 100 <sup>0</sup> F/ Ibid.

Material: Complex calcium soap, synthetic

Property	1	Radiation Data	1	Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR(rads))	$\begin{pmatrix} CD & (rads) \\ -CDR & (rads) \\ hr \end{pmatrix}$	
VS		<b>+3.4</b> E8	+30%, 3.5E8	In Air, Wills, J.G., Nuclear Power Plant Technology, Wiley, 1967, p. 254. Change in work penetration.
VS			+70%, 5E8	Ibid.
VS			+69%, 7E8	· Ibid,
VS			+38%, 1.2E9	Ibid.

Material: Ester, aliphatic, di(2-ethylhexyl)-sebacate

VS	+7.5E8		Baur, J.F., Radiation Damage Limit for Diagnostic Components, General Atomic Co., July, 1981, p. 14.
VS		+8%, 4E7	G/In Air, Radiation Temperature 75°F, Meas. Temp. 210°F/Bolt, R.O., and Carroll, J.G., Radiation Effects on Organic Materials, Academic, 1963, p. 355.
vs		+20%, 1E8	Ibid.
vs		+530%,7.2E8	N+G/In Vac./Ibid.
·			·

Material: Ester, aliphatic, di(2-ethylhexyl)sebacate

Property	Radiation Dat	a	Other Information*
	LTD (rads) 25CD (rads) (LTDR (rads) (25CDR(rads))	$\begin{pmatrix} CD & (rads) \\ -CDR & (rads) \\ hr \end{pmatrix}$	
VS		+11%, 4E7	G/In Air, Radiation Temp. 75°F, Meas. Temp. 100°F/Bolt, R.O., and Carroll, J.G., Radiation Effects on Organic Materials, Academic, 1963, p. 355.
VS		+30%, 1E8	Ibid.
VS		+1039%,7.2E8	N+G/In Vacuum/Ibid.

Material: Ester, aromatic, diisooctyl terephthalate

	_	-	
VS		+26%, 8E7	G/In Air, Radiation Temp. 75°F, Meas. Temp. 100°F/Bolt, R.O., and Carroll, J.G., Radiation Effects on Organic Materials, Academic 1963, p. 356.
VS		+382%, 9E8	Ibid.
VS		+15%, 8E7	G/In Air, Radiation Temp. 75°F, Meas. Temp. 210°F/Bolt, R.O., and Carroll, J.G., Radiation Effects on Organic Materials, Academic, 1963, p. 354.
VS		+167%, 9E8	Ibid.
		•	;·

CLASS: LI	UBRICANT			
Material:	• •	•	nenyl cresyl	
Property		Radiation Dat	_CD (rads)	Other Information*
	(LTDR (rads)	25CD (rads) (25CDR(rads)	$\frac{\text{CD (rads)}}{\left(\frac{\text{CDR (rads)}}{\text{hr}}\right)}$	
VS			+46%, 1E8	G/In Nitrogen, Radiation Temp. 75°F, Meas. Temp. 100°F/Bolt, R.O., and Carroll, J.G., Radiation Effects on Organic Materials, Academic, 1963, p. 354.
Material	: Ester,pho	sphate,tri	cresyl	
VS			+54%, 1E8	G/In Nitrogen, Radiation Temp. 75°F, Meas. Temp. 100°F/Bolt, R.O., and Carroll, J.G., Radiation Effects on Organic Materials, Academic, 1963, p. 356.
Material:	Ester, tri	isoctyl		
VS .			+32%, 1E8	G/In Nitrogen Rad. Temp. 75°F, Meas. Temp. 100°F, Bolt, R.O., and Carroll, J.G., Radiation Effects on Organic Materials, Academic, 1963, p. 356.
Material:	Ether, alk	yd diphenyl		-
VS			+10%, 5E8	In Air, 100°F/Wills, J.G., Nucl. Power Plant Technology, Wiley, 1967, p. 255.
VS			+70%, 1E9	Ibid.
VS			+120%,1.2E9	Ibid.

Material: Ether, Aliphatic, UCON DLB-144E

Property	 Radiation Data	1	Other Information*
	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} CD & (rads) \\ (-CDR & (rads) \\ hr \end{pmatrix}$	•
VS	+1,8E8	+8%, 1E8	G/In Helium, Radiation Temp. 75°F/ Meas. Temp. 210°F/ Bolt, R.O., and Carroll, J.G., Radiation Effects on Organic Materials, Academic, 1963, p. 359.
VS		+160%, 5E8	Ibid.
VS	+1.2E8	+20%, 1E8	Meas. Temp. 100 <sup>0</sup> F/Ibid.
VS		+293%, 5E8	Ibid.

Material: Ether, bis(p-phenoxyphenyl)

VS		+1.2E9	+3%, 1.1E8	E/In Nitrogen, 300°F/ Bolt, R.O., and Carroll, J.G., Radiation Effects on Organic Materials, Academic, 1963, p. 360.
VS			+12%, 5.5E8	Ibid.
VS			+23%, 1.1E9	Ibid.
VS	·		+57%, 2.8E9	Ibid.
VS			+116%,5.5E9	Ibid
VS		+1.5E9	+2.5%,1.1E8	E/400 <sup>0</sup> F/Ibid.
γs			+12%,5.5E8	Ibid.
VS			+19%,1.1E9	Ibid.
VS			+79%,5.5E9	Ibid.
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CLASS:

LUBRICANT

Material: Ether, bis(p-(p-tert-butylphenoxy)-phenyl))

Property		Radiation Data		Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ (\text{-}\frac{\text{CDR}}{\text{hr}}) \end{pmatrix}$	
VS		+2E8	+ <b>6%,</b> 1.1E8	E/In Nitrogen, 210 <sup>0</sup> F/Bolt, R.O. and Carroll, J.G., Radiation Effects on Organic Materials, Academic, 1963, p. 360.
VS			+31%,5.5E8	Ibid.
VS			+50%,1.1E9	Ibid.
<b>VS</b> .			+202%,2.8E9	Ibid.
VS			+980%,5.5E9	Ibid.
<b>v</b> s		+1.6E9	+3%, 1.1E8	E/In Nitrogen, 400 <sup>0</sup> F/ Ibid.
VS			+13%,5.5E8	Ibid.
VS			+18%,1.1E9	Ibid.
VS			+55%,2.8E9	Ibid.
VS			+150%,5.5E9	Ibid.

Material:	Ether, peri	Fluorinated, B	raycote 3L-38-	1
WC			-3.8%, 1E6	G/Luebben, M.G., Results of Radiation Tests on LAC-34 -4554-0200 Grease (Bray Co. 3L-38RP), Lockheed Missiles and Space Co., September 2, 1980, p. 2.

CLASS: L	UBRICANT			
Material:	Ether(poly	ether),genera	1 ,	•
Property		Radiation Dat	<b>a</b> .	Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> ) hr	$\begin{pmatrix} CD & (rads) \\ -CDR & (\frac{rads}{hr}) \end{pmatrix}$	1
<b>V</b> S		+3E8		Bouquet, F.L., Price, W.E., and Newell, D.M., Designer's Guide to Radiation Effects on Materials for Use on Jupiter Fly-Bys and Orbiters, IEEE Trans. Nucl. Sci., Vol, NS-26, No. 4, August 1979, p. 4665.
Material: VS	Ether,polyp	henyl	+40%,1.2E9	E, 3 Mev, Roentgens/210 <sup>0</sup> F/
			140%,1.223	Goetzel, C.G., and Singletary, J.B., Space Materials Hand-book, Lockheed Missiles and Space Corp., January 1962, p. 446.
VS		<b>+</b> 5E9		Bouquet, F.L., Price, W.E., and Newell, D.M., Designer's Guide to Radiation Effects on Materials for Use on Jupiter Fly-Bys and Orbiters, IEEE Trans. Nucl. Sci., Vol. NS-26, No. 4, August 1979, p. 4665.
		·	٠	

Material: Ether, polyphenyl, 5 ring

Property		Radiation Data	Other Information*	
	LTD (rads) $\frac{\text{LTDR}}{\text{hr}}$	25CD (rads) (25CDR( <u>rads</u> )	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ (\text{-CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	
γs	3E8	+7.6E8	+5%, 4.4E8	In Air, 100 <sup>0</sup> F/Wills, J.G., Nuclear Power Plant Tech., Wiley, 1967, p. 255.
VS		·	+20%, 7E8	Ibid.
VS			+37%, 1E9	Ibid.
VS	*		+60%, 1.5E9	Ibid.

Material: Ether, poly(phenyl), p linked

VS	<b>∿1E8</b>	<b>+4</b> E8	+120%,1.2E9	E/In Nitrogen, 100 <sup>0</sup> F/ Bolt, R.O., and Carroll, J.G., Radiation Effects on Organic Materials, Academic, 1963, p. 360.
VS			+280%, 2E9	Ibid.
VS			+500%,2.7E9	Ibid.
VS		+2.5E9	+10%,1.2E9	E/In Nitrogen, 600 <sup>0</sup> F/Ibid.
VS			+60%, 5E9	Ibid.
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<b>CLASS</b>	:	<b>LUBRICANT</b>

Material: Films, dry, general

_ Property	Radiation Data	Other Information*
VS	LTD (rads) 25CD (rads) (LTDR ( <u>rads</u> ) (25CDR( <u>rads</u> )) +5E9	CD (rads) (CDR (rads))  Bouquet, F.L., Price, W.E., and Newell, D.M., Designer's Guide to Radiation Effects on Materials for Use on Jupiter Fly-Bys and Orbiters, IEEE Trans. Nucl. Sci., Vol. NS-26, No. 4, August 1979, p. 4465.

materia:	Gear lubric	ant, aromatic	aisuitiae	
VS	·		+15%, 1E9	In Air, 100 <sup>0</sup> F/Wills, J.G., Nuclear Power Plant Tech., Wiley, 1967, p. 250.
٧s			+40%, 1E9	In Inert Atmosphere,

Material: Gear lubricant, oil/synthetic aromatic, disulfide

VS		+130%, 1E9	In Air, 100 <sup>0</sup> F/Wills, J.G., Nuclear Power Plant Tech., Wiley, 1967, p. 250.
VS		+70%, 1E9	In Inert Atmosphere, 100 <sup>0</sup> F/Ibid.

Material: Grease, Cal Research 159

Property		Radiation Data	1	Other 1	Information*
	(LTDR (rads)	25CD (rads) (25CDR(rads))	$\binom{\text{CD}}{\text{CDR}} \left( \frac{\text{rads}}{\text{hr}} \right)$	}	
VS	>8.2E8			Singlet Materia Lockhee	I, C.G., and tary, J.B., Space als Handbook, ad Missiles and Space January 1962, p. 446.

Material:	Grease, UK	AEA Schedule 1		
HD	1E8	+3E8		In Air/Wills, J.G., Nuclear Power Plant Technology, Wiley, 1967, p. 251. Change in work penetration, softens.
HD			+35%, 5E8	Grease Softens/Ibid.
HD			+30%, 1E9	Ibid.

Material: Methylene linked aromat	Material:	Methylene	linked	aromatic
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VS		+30%, 1E9	In Air, 300 <sup>0</sup> F/Wills, J.G., Nuclear Power Plant Tech., Wiley, 1967, p. 244.
VS	+1E9		In Air, 400 <sup>0</sup> F/Ibid.
VS		+15%, 1E9	In Air, 500 <sup>0</sup> F/Ibid.
VS		0%, 1E9	In Air, 570 <sup>0</sup> F/Ibid.
VS		-10%, 1E9	In Air, 600 <sup>0</sup> F/Ibid.

**V**:5

CLASS: LU	BRICANT		
Material:	Phosphates, general		•
Property	Radiation Dat		Other Information*
	LTD (rads) 25CD (rads) (LTDR (rads) (25CDR(rads))		
VS	+4E5		Bouquet, F.L., Price, W.E., and Newell, D.M., Designer's Guide to Radiation Effects on Materials for Use on Jupiter Fly-Bys and Orbiters, IEEE Trans. Nuclear Sci., Vol. Ns-26, No. 4, August 1979, p. 4665.
Material:	Silicone fluid; Dow Cor	ning - 200	
VS		-2.4, 1E5	G/Rad. Temp. 24.8°C/ JPL Tests/Eskanas, A., Radiation Effects on Dow Corning 200 and 510 Silicone Fluids, September 20, 1979, p. 4.
VS		+18, 1E6	Rad. Temp. 26.8 <sup>0</sup> C/Ibid.
VS		+1260, 5E6	Rad. Temp. 27.6 <sup>0</sup> C/Ibid.
Material:	Silicone fluid; Dow-Corn	ning -510	
VS		-3.8%, 1E5	G/Rad. Temp. Unspecified/ JPL Tests/Eskanas, A., Radiation Effects on Dow Corning 200 and 510 Silicone Fluids, September 20, 1979, p. 4.
VS		+16%, 1E6	Rad. Temp. 26.8 <sup>0</sup> C/Ibid.

\*Note: Order in which the information appears: Units, if different than rads, particle(s), k factor/Environmental data/Material data/References.

Rad. Temp. 26.6°C/Ibid.

Material:	Silicone ,	methyl, genera	al 🥶	•
Property	1	Radiation Data	1	Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR(rads))	$\begin{pmatrix} CD & (rads) \\ CDR & (rads) \\ hr \end{pmatrix}$	<u> </u>
VS		+1E7		Bouquet, F.L., Price, W.E., and Newell, D.M., Designer's Guide to Radiation Effects on Materials for Use on Fly-Bys and Orbiters, IEEE Trans. Nucl. Scil, Vol. NS-26, No. 4, August 1979, p. 4665.
Material:	Silicone #1	uid, polyphen	ylmethyl, 35 c	entistokes fluid
VS	1E8	+5E8		G/Currin, C.G., AIEE Conf. Paper 58-289, Winter General Meeting, New York, February 6, 1958, p. V.

Material: Spindle lubricant, synthetic aromatic A

VS		+45%, 1E9	In Air, 100 <sup>0</sup> F/Wills, J.G., Nuclear Power Plant Techno- logy, Wiley, 1967, p. 250.
VS		+25%, 1E9	In Inert Atmos., 100 <sup>0</sup> F/Ibid.
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CLASS	: L

LUBRICANT -

Material: Spindle lubricant, synthetic aromatic B

Property	<b>F</b>	Radiation Date	<u> </u>	Other Information*
	$ \begin{pmatrix} \text{LTDR} & \left(\frac{\text{rads}}{\text{hr}}\right) \end{pmatrix} $	25CD (rads) (25CDR(rads)	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ \text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	1
VS		•	+45%, 1E9	In Inert Atmos., 100 <sup>0</sup> F/ Wills, J.G., Nuclear Power Plant Technology, Wiley, 1967, p. 250.
VS			+70%, 1E9	In Air, 100 <sup>0</sup> F/Ibid.

Material: Turbine lubricant, synthetic base Mil-L-7808C

VS	1.5E14		N, Thermal flux neutrons/ cm <sup>2</sup> /Goetzel, C.G., and Singletary, J.B., Space Materials Handbook, January 1962, p. 446.
VS	5.3E6		Roentgens/Ibid.
<b>v</b> s		-50%, 6E6	G, Roentgens/Ibid., p. 447.

Material: Versilube G-300

nacer tar.	ACIDITADE A	- 500	
VS	4.5E13		N, Thermal Flux/Goetzel, C.G., and Singletary, J.B., Space Materials Handbook, Lockheed Missiles and Space Corp., January 1962, p. 446. Slight damage but still useable.
VS	1E7		G/Ibid. Slight damage but still useable.

CLASS: ADHESIVE

Material:	Acrylic	,Y966
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	Acrylic, 496			<u>.</u>
Property		Radiation Data		Other Information*
	$ \begin{pmatrix} \text{LTDR} & (\text{rads}) \\ (\text{LTDR} & (\text{rads}) \\ \text{hr} \end{pmatrix} $	25CD (rads) (25CDR( <u>rads</u> )	$\begin{pmatrix} CD & (rads) \\ -CDR & (\frac{rads}{hr}) \end{pmatrix}$	1
TS	>2.8E10	·		P, 480 Kev/In Vac./Bouquet, F.L., and Phillips, A., Radiation Test of Materials for Galileo Spacecraft, JPL Report, D380, November 18, 1982 p. 16.
Material:	Acrylonitr	ile rubber-ph	enolic,AF-6	
SS		+1.6E8	+16%,0.8E8	G/In Air, 65°F/Bolt, R. O. and Carroll, J. G., Radiation Effects on Organic Materials, Academic Press, N.Y., 1963, p. 411.
SS		• *	+30%,2E8	Ibid.
SS			+36%,3.6E8	Ibid.
SS			+28%,5E8	Ibid.
SS		ľ	+5%,7E8	Ibid.
SS	8E7		-8%,2.2E8	G/In Air, 260°F/Bolt, R. O. and Carroll, J. G., Radiation Effects on Organic Materials, Academic Press, N.Y., 1963, p. 412.
<b>S</b> S			-10%,4E8	Ibid.
SS			-10%,6E8	Ibid.
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	<b>4</b> 1	, 1		

**ADHESIVE** CLASS:

Acrylonitrile rubber-phenolic, Cycleweld A-Z Material:

Property		Radiation Date	· .	Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> )	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ -\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	
SS	8E7 -	1.2E8	-40%,1.7E8	G/In Air, 260°F/Bolt, R. O. and Carroll, J. G., Radiation Effects on Organic Materials, Academic Press, N.Y., 1963, p. 412.
SS			-49%,2.5E8	Ibid.
<b>S</b> S			-30%,6E8	Ibid.
SS			∿0% <b>,9</b> E8	Ibid.
	1			

Material: Acrylonitrile rubber-phenolic, Cycleweld A-Z

SS		8.5E8	-13%,1E8	G/In Air, 65°F/Bolt, R. O. and Carroll, J. G., Radiation Effects on Organic Materials, Academic Press, N.Y., 1963, p. 411.
<b>S</b> S			-10%,2.2E8	Ibid.
<b>S</b> S			-8%,3E8	Ibid.
<b>S</b> S			-12%,5E8	Ibid.
<b>S</b> S			-34%,1E9	Ibid.
	·			
	·			

CLASS: ADHESIVE

Material: Epoxy, Araldite

Property	1	Radiation Data	<u> </u>	Other	Information*	
l	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ (\frac{\text{CDR}}{\text{hr}}) \end{pmatrix}$			
SS	<b>4E</b> 7	6E9		Sisma Radia	rons, k = 4E-9/ in, O., ASTM Sym. ition Effects on M 1, 1957, p. 124.	on aterials,

Material: Epoxy, EC 1614A/B

TS	>2.8E10		P, 480 Kev/In Vac./Bouquet, F.L., and Phillips, A., Radiation Test of Materials for Galileo Spacecraft, JPL Report, D380, November 18, 1982, p. 15.

CLASS: ADHESIVE

Material: Epoxy, Epon VIII

material:	Epoxy, Epon	ATTT		
Property		Radiation Data		Other Information*
		25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ -\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	1
TS		4.6E8	+3%, 7E7	G/In Air, 65 <sup>0</sup> F/Bolt, R.O. and Carroll, J.G., Radia- tion Effects on Organic Materials, Academic Press, N.Y., 1963, p. 410.
TS		·	-1%, 2.5E8	Ibid.
TS			-6%, 1.7E8	Ibid.
TS			-19%, 3.6E8	Ibid.
TS			-28%, 5.5E8	Ibid.
TS			-36%, 7E8	Ibid.
SS		5E8	-20% <b>,</b> 4E8	G/In Air, 65 <sup>0</sup> F/Bolt, R.O. and Carroll, J.G., Radiation Effects on Organic Materials, Academic Press, N.Y., 1963, p. 411.
SS			-10%, 2.2E8	Ibid.
SS			-35%, 6.9E8	Ibid.
SS	8E7	1.7E8	-27%, 1.8E8	G/In Air, 260°F/Bolt, R.O. and Carroll, J.G., Radiation Effects on Organic Materials, Academic Press, N.Y., 1963, p. 412.
SS			-50%, 4E8	Ibid.
SS			-60%, 5.8E8	Ibid.
SS			-67%, 9E8	Ibid.
		•		

CLASS:	ADUECTUE
ULM33.	ADHESIVE

Material:	Epoxy, Epon	929
	LDOXY, LDON	

Property	i	Radiation Data		Other Information*
	LTD (rads) (LTDR (rads) hr)	$\binom{25CD (rads)}{\binom{25CDR}{hr}}$	$\begin{pmatrix} CD & (rads) \\ -CDR & (\frac{rads}{hr}) \end{pmatrix}$	_
SS			+12%,6E7	G/In Air, 100°F/Materials Properties Data Book, Vol. 3, Nonmetallics, Aerojet Nucl. Systems Co., Report 2275, November 30, 1970, p. 605.
SS			+4%,1.2E8	Ibid.
<b>S</b> S			-2%,3.8E8	Ibid.

Material:	Epoxy, Epoi	934	•	
SS :	-1% 3.8E8			G/In Air, 100°F/Material Properties Data Book, Vol. 3, Nonmetallics, Aerojet Nucl. Systm. Co., Report 2275, November 30, 1970, p. 609.
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		•		
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CLASS: ADHESIVE

Material: Epoxy, general

Property	. 1	Radiation Data		Other Information*
	(LTDR (rads) (LTDR (rads) hr)		$\binom{\text{CD}}{-\text{CDR}} \left( \frac{\text{rads}}{\text{hr}} \right)$	•
SS	5E8	1E9		Bouquet, F.L., Price, W.E. and Newell, D.M., Designers Guide to Radiation Effects on Materials, for Use on Jupiter Fly-Bys and Orbiters, IEEE Trans. Nucl. Sci., Vol. NS-26, No. 4, August 1979, p. 4665.

Material:	Epoxy,nitri	le,Metlbond 402		
SS		-11%,	6E7	G/In Air, 100°F/Material Properties Data Book, Vol. 3, Nonmetallics, Aerojet Nucl. Systm. Co., Report 2275, November 30, 1970, p. 635.
SS		-24.4	%,3.8E8	Ibid.

Material:	Epoxy Nylon	_	
SS	3.8E8		G/In Air, 100°F/Material Properties Data Book, Vol. 3, Nonmetallics, Aerojet Nucl. Systm. Co., Report 2275, November 30, 1970, p. 612.

CLASS:	ADHESIVE			
Material:	Epoxy-phen	olic		
Property		Radiation Data	L	Other Information*
	LTD (rads) (LTDR ( <u>rads</u> )	25CD (rads) (25CDR( <u>rads</u> ))	CD (rads) (CDR (rads))	
SS			-5%, 2E7	G/In Air, 65°F/Bolt, R. O. and Carroll, J. G., Radiation Effects on Organic Materials, Academic Press, N.Y., 1963, p. 411.
SS			-7%, 7E7	Ibid.
SS			-5%,2E8	Ibid.
SS			-5%, <b>6</b> E8	Ibid.
<b>\$</b> \$			-10%,8.7E8	Ibid.
Material:	Epoxy, pheno	lic, Aerobond	430	•
<b>S</b> S			-11%,1.5E7	G/In Air, 100°F/Material Properties Data Book, Vol. 3, Nonmetallics, Aerojet Nucl. Systm. Co., Report 2275, November 30, 1970, p. 618A.
SS			-7.4%,5.8E7	Ibid.
SS	1.		-14.8%,1.2E8	Ibid.
Material:	Epoxy phenol	ic, 422		
SS	8E7		+1%,3E8	G/In Air, 260°F/Bolt, R. O. and Carroll, J. G., Radiation Effects on Organic Materials, Academic Press, N.Y., 1963 p. 412.
SS			+2%,6E8	Ibid.
SS			+8%,9E8	Ibid.

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CLASS:	ADHESIVE		•	•	
Material:	Epoxy-pheno	1ic,HT-424	•		·
Property	R	adiation Data		Other Information*	
	LTD (rads) (LTDR ( <u>rads</u> )	25CD (rads) (25CDR(rads))			
<b>\$</b> S	6E7		-8%, 1.2E8	G/In Air, 100°F/Mat Properties Data Boo Nonmetallics, Aeroj Systm. Co., Report November 30, 1970,	ok, Vol. 3, let Nucl. 2275,
Material:	Epoxy, poly	amide, Metlbo	nd 406	•	
ss			-86%,5.5E8	Neutron data; K=4E Broadway, N, AD656 April 1964, p. D-1	926,

Material:	Epoxy resi	n, Versamid	
WC	>2.8E10		P, 480 kev/In Vac./Bouquet, F.L. and Koprowski, E.F., Radiation Effects on Spacecraft Materials for Jupiter and Near-Earth Orbiters, IEEE Trans. Nucl. Sci., Vol. NS-29, No. 6, December 1982, p. 1631.
WC	>2.8E10		P, 480 kev/In Vac./Bouquet, F.L., and Phillips, A., Radiation Test of Materials for Galileo Spacecraft, JPL Report, D380, November 18, 1982, p. 15.

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CLASS: ADHESIVE

Material: Vinyl phenolic

Property		Radiation Data	1	Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ \text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	
TS		7.1E8	+2%,8E7	G/In Air, 65°F/Bolt, R. O. and Carroll, J. G., Academic Press, N.Y., 1963, p. 410.
		٠.	-2%,2.5E8	Ibid.
ļ			-26%,7.4E8	Ibid.

Material:	Material: Vinyl phenolic FM-47					
<b>S</b> S		<b>5E</b> 8	+3%,0.8E8	G/In Air, 65°F/Bolt, R. O. and Carroll, J. G., Radiation Effects on Organic Materials, Academic Press, N.Y., 1963, p. 411.		
<b>S</b> S			-4%,2.5E8	Ibid.		
SS			15%,4E8	Ibid.		
<b>S</b> S			-40%,6.5E8	Ibid.		
SS			-52%,7.6E8	Ibid.		

Material:	Vinyl pheno	olic, FM-47	_	_
SS	6E7		-14%,3.8E8	G/In Air, 100°F/Material Properties Data Book, Vol. 3, Nonmetallics, Aerojet Nucl. Systm. Co., Report 2275, November 30, 1970, p. 638.

CLASS: ADHESIVE

Material: Vinyl phenolic, FM-47 tape

Property		Radiation Date	A	Other Information*
	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> )	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ -\text{CDR} & (\frac{\text{rads}}{\text{hr}}) \end{pmatrix}$	1
TS		6.5E8	+3%,1E8	G/In Air, 65°F/Bolt, R. O. and Carroll, J. G., Radiation Effects on Organic Materials, Academic Press, N.Y., 1963, p. 410.
TS			-2%,3E8	Ibid.
TS			-31%,7.5E8	Ibid.

Material: Vinyl phenolic, FM-47

SS	8E7		-13%,2.5E8	G/In Air, 260°F/Bolt, R. O. and Carroll, J. G., Radiation Effects on Organic Materials, Academic Press, N.Y., 1963, p. 412.
SS			-15%,3E8	Ibid.
<b>S</b> S		İ	-15%,6E8	
SS		1.	-15%,4E8	Ibid.
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·				

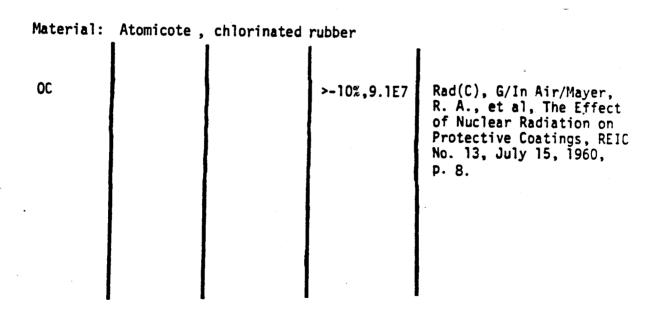
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CLASS: COATING

Material: Acrylic, general

Property	Radiation	Data	Other Information*
	LTD (rads) 25CD (r (LTDR (rads)) (25CDR(r	$\frac{rads}{rads}$ CD $\frac{rads}{rads}$ $\frac{CD}{rads}$ $\frac{rads}{rads}$	
BR .		7.1%,7E7	Rad(C), G/In Air/Mayer. R. A., et al, The Effect of Nuclear Radiation on Protective Coatings, REIC No. 13, July 15, 1960, p. 8.

Material:	Acrylic, Ke	macryl	
BR	8E6	1E7	Bouquet, F.L., Price, W.E., and Newell, D.M., Designer's Guide to Radiation Effects on Materials for Use on Jupiter Fly-Bys and Orbiters, IEEE Trans. Nucl. Sci., Vol. NS-26, No. 4, August 1979, p. 4666.



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CLASS: COATING

Material: Conformal coating Solithane 113/300

Property		Radiation Data	•	Ather Informations
EC	LTD (rads) (LTDR (rads) hr) >1E13	25CD (rads) (25CDR(rads))	CD (rads)	E, 3 Mev, Electron Fluence/ In Air/Bouquet, F. L., and Koprowski, E. F., Jupiter Radiation Effects on Space- craft Materials, 19th IEEE Annual Conf. on Nucl. and Space Radiation Effects, Las Vegas, NV, July 21, 1982,
		•	·	p. 3.

Material:	Drying oil a	lkyd coating	(enamel)	
СХ			>-50% <b>,</b> 8.7E8	Rad(C), G/In Air/Mayer, R. A., et al, The Effect of Radiation on Protective Coatings, REIC No. 13, July 15, 1960, p. 4.

Material:	Epoxy, gene	eral	•	•
CX			>-50%,4.4E8	Rad(C), G/In Air/Mayer, R. A., et al, The Effect of Nuclear Radiation on Protective Coatings, REIC No. 13, July 15, 1960, p. 5.

CLASS: COATING

Material: Fluorinated vinyl copolymer/ Kel-F 800

Property	Radiation Data			<b>Other</b>	Information*
	LTD (rads) (LTDR (rads) hr)	$\binom{25\text{CDR}(\frac{\text{rads}}{\text{hr}})}{25\text{CDR}(\frac{\text{rads}}{\text{hr}})}$	$\begin{pmatrix} \text{CD (rads)} \\ \left( \frac{\text{CDR}}{\text{hr}} \right) \end{pmatrix}$	·	<del> </del>
FS	<4.4E9			R.A. 1960	s(C), G/In Air/Mayer, , REIC Report No. 13, ), p. 12. Blistering arred at 4.4E9 rads.

Material: Furane based Alkalyoy-550

>8.7E8

Rads(C), G/In Air/Concrete Panel Substrate/Mayer, R.A., et. al., The Effect of Nuclear Radiation on Protective Coatings, REIC No. 13, July 15, 1960, p. 6.

CLASS: COATING

Material: Melamine - modified coconut alkyd

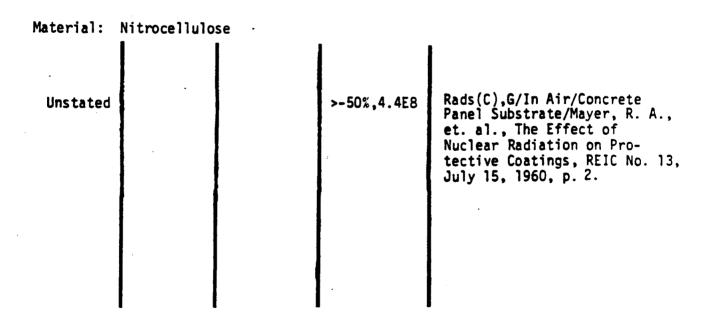
Property	Radiation Data			Other	Information*
OC	LTD (rads) (LTDR (rads) hr)	25CD (rads) (25CDR( <u>rads</u> ))	_CD (rads) (_CDR ( <u>rads</u> )) hr )) >-12%,1.7E7	of Nuc Protec	), B/In Air/Mayer, , et al, The Effect clear Radiation on ctive Coatings, REIC 3, July 15, 1960,

Material: Neobon, Neoprene - type resin

CL

>-10%, 7E7

Rad(C), G/In Air/Mayer, R.A., et al., The Effect of Nuclear Radiation on Protective Coatings, REIC No. 13, July 15, 1960, p. 10.



CLASS:

COATING

Material: Phenolic, Amphesive - 801

Property	F	Radiation Data	<u> </u>	Other Information*
	LTD (rads) (LTDR (rads) hr)		$\binom{CD}{\binom{CDR}{hr}} \binom{rads}{hr}$	
BR			>-10%,8.7E8	Rads(C), G/In Air/Concrete Panel Substrate/Mayer, R.A., et. al., The Effect of Nuclear Radiation on Pro- tective Coatings, REIC No. 13, July 15, 1960, p. 6.

Material: Phenolic, MIL - R - 3043

HD		>-10%,8.7E8	Rad(C), G/In Air, 250°F/ Mayer, R.A., et. al., The Effect of Nuclear Radiation on Protective Coatings, REIC No. 13, July 15, 1960, p. 6.
RK		z-10%,8E6	Ĭbid.

Material: Phenolic, Phenoline 3 resin

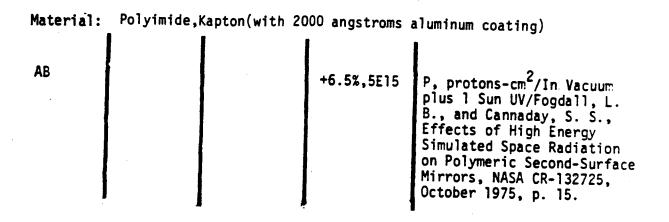
OC		>-10%,8.7E8	Rads(C), G/In Air/Concrete Panel Substrate/Mayer, R.A., et. al., The Effect of Nuclear Radiation on Pro- tective Coatings, REIC No. 13, July 15, 1960, p. 6.
		•	

CLASS: COATING

Material: Polyester

Property Radiation Data Other Information	i a m +
LTD (rads) 25CD (rads) CD (rads) (LTDR (rads) (25CDR(rads)) (-CDR (rads)	Mayer, R. A., ect of Nuclear rotective

Material: Polyethylene CL >-10%,9.1E8 Rad(C)/In Air/Free Standing Films/Mayer, R. A., et al, The Effect of Nuclear Radiation on Protective Coatings, REIC No. 13, July 15, 1960, p. 11. EL 9.1E10 Rads(C), G/In Air/Mayer, R. A., REIC Report No. 13, 1960, P. 11. Coatings were darkened by radiation, embrittled.

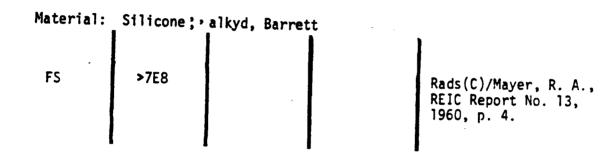


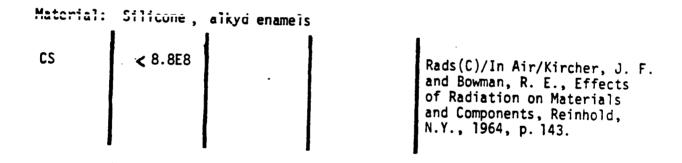
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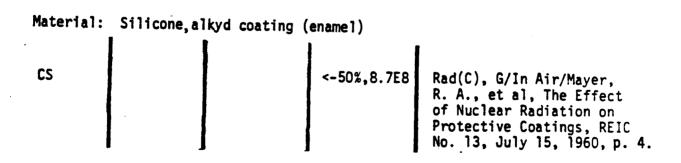
CLASS: COATING -

Material: Polyvinyl butyral wash primer, MIL-C-8514

Property		Radiation Data	l	Other Information*
CL	LTD (rads) (LTDR (rads) hr) >7E7		CD (rads)	Rad(C), G/In Air/Mayer, R. A., et al, The Effect of Nuclear Radiation on Protective Coatings, REIC No. 13, July 15, 1960, p. 7.







Material:	Silicone,alk	yd enamel
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Property	Radiation Data	Other Information*
		)
BR	1E9	Bouquet, F.L., Price, W.E., and Newell, D.M., Designer's Guide to Radiation Effects on Materials for Use on Jupiter Fly-Bys and Orbiters, IEEE Trans. Nucl. Sci., Vol. NS-26, No. 4, August 1979, p. 4666.

Material: Silicone, GE 224

WC	>2.8E10	

P, 480 Kev/In Vac./Bouquet, F. L., and Phillips, A, Radiation Test of Materials for Galileo Spacecraft, JPL Tech. Memo., D380, November 18, 1982, p. 15.

Material: Silicone, S13G

BR	1E5	1E6	Bouquet, F. L., Price, W.E., and Newell, D.M., Designer's Guide to Radiation Effects on Materials For Use on Jupiter Fly-Bys and Orbiters, IEEE Trans. Nucl. Sci., Vol. NS-26, No. 4, August 1979, p. 4666.

CLASS: COATING

Material: Silicone , S13GLO

Property		Radiation Data	<b>I</b>	Other In	formation*
	(LTDR (rads)	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} \text{CD} & (\text{rads}) \\ (\text{-CDR} & (\text{rads}) \\ \text{hr} \end{pmatrix}$		
BR	1E6	<b>8</b> E6		and Newe Guide to on Mater Jupiter IEEE Tra	F.L., Price, W.E., 11, D.M., Designer's Radiation Effects ials for Use on Fly-Bys and Orbiters, ns. Nucl. Sci., Vol. o. 4, August 1979,

Material:	Silicone,	Thermatrol 6A	100
BR	1.5E7	8E7	Bouquet, F.L., Price, W.E., and Newell, D.M., Designer's Guide to Radiation Effects on Materials for Use on Jupiter Fly-Bys and Orbiters, IEEE Trans. Nucl. Sci., Vol. NS-26, No. 4, August 1979, p. 4666.

Material: Styrene, general						
BŖ		<b>2E</b> 8		Bouquet, F.L., Price, W.E., and Newell, D.M., Designer's Guide to Radiation Effects on Materials for Use on Jupiter Fly-Bys and Orbiters, IEEE Trans. Nucl. Sci., Vol. NS-26, No. 4, August 1979, p. 4666.		

CLASS: COATING

Material: Styrene, Prufcoat

Property	Radiation Data			Other Information*
	LTD (rads) (LTDR (rads)	25CD (rads) (25CDR( <u>rads</u> ))	$\begin{pmatrix} \text{CD (rads)} \\ \text{CDR (} \frac{\text{rads}}{\text{hr}} \end{pmatrix} \end{pmatrix}$	
BR			hr // >-10%,9.6E8	Rad(C)/In Air/Concrete Substrate/Mayer, R. A., et al, The Effect of Nuclear Radiation on Protective Coatings, REIC No. 13, July 15, 1960, p. 11.

Material:	Styrene, Ze	rox 110	<b>l</b> :	•
CL			>-10%,9.6E8	Rad(C)/In Air/Concrete Substrate/Mayer, R. A., et al, The Effect of Nuclear Radiation on Protective Coatings, REIC No. 13, July 15, 1960, p. 11.

Material: Vinyl Chloride, Amercoat-23					
CL			>-10%,1E9	Rad(C), G/In Air/Mayer, R. A., et al, The Effect of Nuclear Radiation on Protective Coatings, REIC No. 13, July 15, 1960, p. 11.	